

JVC

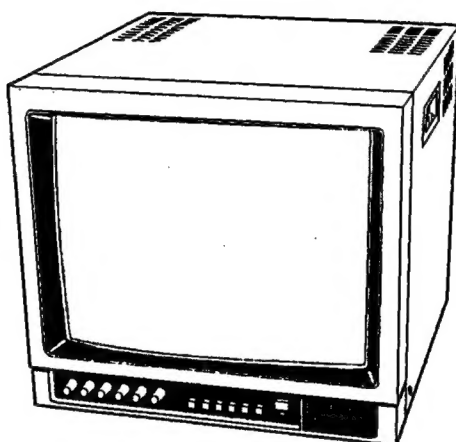
SERVICE MANUAL

COLOUR VIDEO MONITOR

TM-1500PS

BASIC CHASSIS

TM



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SPECIFICATIONS

Item	Content
Dimensions	36.0cm(W) × 39.4cm(D) × 33.4cm(H)
Weight	16.0kg
Color system	PAL/SECAM system
Power Input	AC 220 - 240V, 50/60Hz
Power consumption	Max. 68W
Picture Tube	15" (measured diagonally), 90° deflection, in-Line gun, data grade tinted CRT tri-dot pitch 0.499mm
Screen Size	284mm(W) × 213mm(H)
Scanning frequency	(H) 15.625KHz (V) 50Hz
High voltage	24kV (at zero beam current)
Horizontal resolution	More than 450 lines
Speaker	4.5cm round (16Ω) × 1
Audio output	0.75W
INPUT A	
VIDEO	BNC × 2 (IN/OUT), Bridged connection is possible. VS-1Vp-p, 75Ω, negative
AUDIO	A termination switch is provided. (75Ω/OPEN) RCA pin connector × 2 (IN/OUT), Bridged connection is possible. 390mVrms, High impedance
INPUT B	
VIDEO	8-pin connector × 1 VS-1Vp-p, 75Ω, negative
AUDIO	775mVrms, High impedance
Y/C INPUT	
Y/C	7-pin connector × 2 (IN/OUT), Bridged connection is possible. Y-VS-1Vp-p, 75Ω, negative C-0.3Vp-p (burst), 75Ω A termination switch is provided. (75Ω/OPEN)
AUDIO	RCA pin connector × 2 (IN/OUT), Bridged connection is possible. 390mVrms, High impedance
ACCESSORY	Power cord (approx. 2.4m) × 1
OPTION	RK-150E (RACK MOUNT ADOPTOR)
FUSE	QMF51E2-3R15S (3.15A)

Design & specification subject to change without notice.

SAFETY PRECAUTIONS

1. The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (⚡) on the parts list in Service manual.** The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may create shock, fire, or other hazards.
4. **Don't short between the LIVE side ground and NEUTRAL side grounding or EARTH side ground when re-pairing.**
Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE (⚡) side GND, the NEUTRAL (⚡) side GND and EARTH (⚡) side GND. Don't short between the LIVE side GND and NEUTRAL side GND or EARTH side GND and never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and NEUTRAL side GND or EARTH side GND at the same time. If above note will not be kept, a fuse or any parts will be broken.
5. If any repair has been made to the chassis, it is recommended that the B1 setting should be checked or adjusted (See ADJUSTMENT OF B₁ POWER SUPPLY).
6. The high voltage applied to the picture tube must conform with that specified in Service manual. Excessive high voltage can cause an increase in X-Ray emission, arcing and possible component damage, therefore operation under excessive high voltage conditions should be kept to a minimum, or should be prevented. If severe arcing occurs, remove the AC power immediately and determine the cause by visual inspection (incorrect installation, cracked or melted high voltage harness, poor soldering, etc.). To maintain the proper minimum level of soft X-Ray emission, components in the high voltage circuitry including the picture tube must be the exact replacements or alternatives approved by the manufacturer of the complete product.
7. Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a VTVM. Discharge the picture tube before attempting meter connection, by connecting a clip lead to the ground frame and connecting the other end of the lead through a 10kΩ 2W resistor to the anode button.
8. When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

9. Isolation Check

(Safety for Electrical Shock Hazard)

After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screwheads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

(1) Dielectric Strength Test

The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3000V AC (r.m.s.) for a period of one second.

(... Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.)

This method of test requires a test equipment not generally found in the service trade.

(2) Leakage Current Check

Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.) Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).

• Alternate Check Method

Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.35V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).

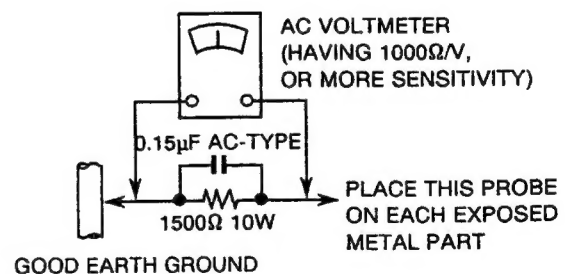
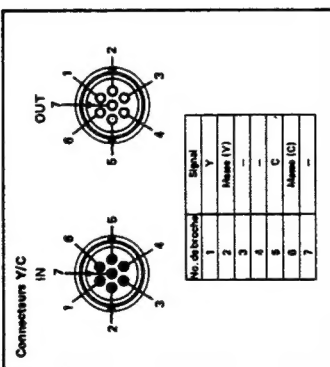
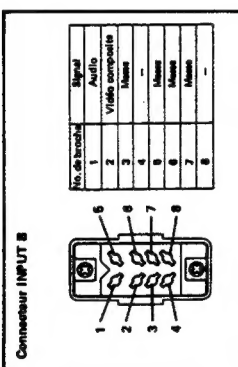


Fig.A

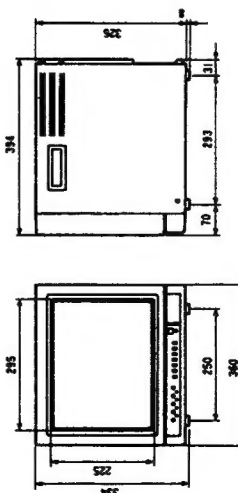
CARACTERISTIQUES TECHNIQUES

- Type**
Système couleur
Tube image
- Sortie audio**
Haut-parleur
- Taille de l'écran (HxV)**
: 284 x 213 mm
- Fréquence de balayage**
: (H) 15,625 kHz
(V) 50 Hz
- Résolution horizontale**
: Plus de 450 lignes
- Alimentation**
: 220 - 240 V CA, 50/60 Hz
- Consommation**
INPUT A
: Max. 88 W
: VIDEO - BNC x 2
VS - 1 Vcc, 75 ohms, synchro négative, recordement en sonde possible.
(Un commutateur d'extrémité est prévu.)
- INPUT B**
AUDIO - connecteur à broches RCA x 2, 380 mVrms, haute impédance, recordement en sonde possible.
: Connecteur à 8 broches x 1
VS - 1 Vcc, 75 ohms, synchro négative
AUDIO - 775 mVrms, haute impédance
: Connecteur à 7 broches Y/C x 2
Y - 1 Vcc, 75 ohms, synchro négative
C - 0.3 Vcc (burst), 75 ohms
Recordement en sonde possible.
(Un commutateur d'extrémité est prévu.)
- INPUT Y/C**
AUDIO - 380 mVrms, haute impédance, recordement en sonde possible.
: 16,0 kg
- Poids**
Accessoire
: Cordon d'alimentation (environ 2,4 m) x 1

Affectation des broches

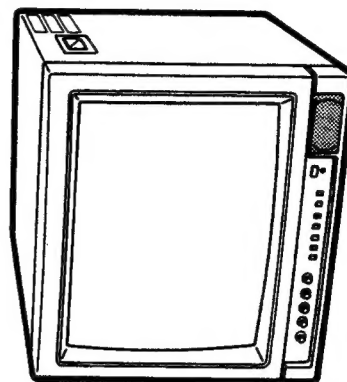


Dimensions (Unit: mm)



Présentation et caractéristiques modifiables sans préavis.

INSTRUCTIONS

JVC
TM-1500PSCOLOUR VIDEO MONITOR
BEDIENUNGSANLEITUNG: FARB-VIDEO-MONITOR
MANUEL D'INSTRUCTIONS: MONITEUR VIDEO COULEUR

SAFETY PRECAUTIONS

In order to prevent any fatal accidents caused by misoperation or mishandling of the monitor, be fully aware of all the following precautions.

WARNINGS

To prevent fire or shock hazard, do not expose this monitor to rain or moisture. Dangerous high voltages are present inside the unit. Do not remove the back cover of the cabinet. When servicing the monitor, contact qualified service personnel. Never try to service it yourself.

Improper operations, in particular alteration of high voltage or changing the type of tube may result in x-ray emission of considerable dose. A unit altered in such a way no longer meets the standards of certification, and must therefore no longer be operated.

PRECAUTIONS

- Use only the power source specified on the rating label located on rear of the cabinet.
- When not using this unit for a long period of time, or when cleaning it, be sure to disconnect the power plug from the AC outlet.
- Do not allow anything to rest on the power cord. And do not locate this unit where people will tread on the cord.
- Do not overload wall outlets or power cords as this can result in a fire or electric shock.
- Avoid using this unit under the following conditions:
 - In extremely hot, cold or humid places,
 - In dusty places,
 - Near appliances generating strong magnetic fields,
 - In places subject to direct sunlight, and
 - In badly ventilated places.
- Do not cover the ventilation slots while in operation as this could obstruct the required ventilation.
- When dust accumulates on the screen surface, clean with a soft cloth.
- Unplug this unit from the AC outlet and refer servicing to qualified service personnel under the following conditions:
 - When the power cord is frayed or plug is damaged.
 - If liquid has been spilled into the unit.
 - If the unit does not operate normally following the operating instructions.
 - If the unit has been dropped or the cabinet has been damaged.
 - When the unit exhibits a distinct change in performance.
- Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Always refer servicing to qualified service personnel.
- When replacement parts are required, have the service personnel verify in writing that the replacement parts he uses have the same safety characteristics as the original parts. Use of manufacturer's specified replacement parts can prevent fire, shock, or other hazards.
- Upon completion of any servicing or repair to this unit, please ask the service personnel to perform the safety check described in the manufacturer's service literature.
- When this unit reaches the end of its useful life, improper disposal could result in a picture tube implosion. Ask qualified service personnel to dispose of this unit.

Thank you for purchasing a JVC colour video monitor. Your new monitor will provide superior-quality pictures and incorporates many useful functions. To ensure a complete understanding of the monitor and to extend its service life, please read all Instructions in this booklet and keep it in a safe place for future reference.

FEATURES

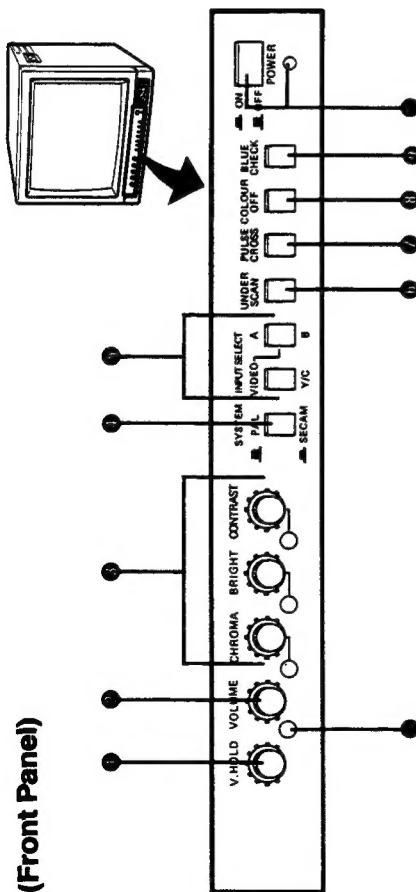
- Multi-standard compatibility for a wide range of professional applications; accepting composite video, Y/C separate video input.
- 15-inch data-grade CRT, together with a comb filter for pictures with a horizontal resolution of more than 450 lines.
- Multi-function and superior flexibility with numerous facilities required by professional users including a under scan switch, pulse cross switch, etc.
- Mountable in a standard EIA rack with optional rack mount adapter RK-150E. (For mounting, refer to the instruction manual of the RK-150E.)

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CONTROLS AND CONNECTORS

(Front Panel)






- ① **V. HOLD control**
Turn to adjust the vertical synchronization of the picture.


- ② **VOLUME control**
Turn clockwise to make the sound louder. Counterclockwise to make it softer.



- ③ **Picture controls**
Use to optimize the picture. The centre click position of each control is its standard setting. This standard setting can be varied (preset) by turning the SUB control screws at the side of the controls. Use a screwdriver to turn the SUB controls.

- **CHROMA control**
Turn to adjust the colour density of the picture to your preference.
- **BRIGHT control**
Turn to adjust the picture brightness to your preference.
- **CONTRAST control**
Turn to adjust the picture contrast to your preference.

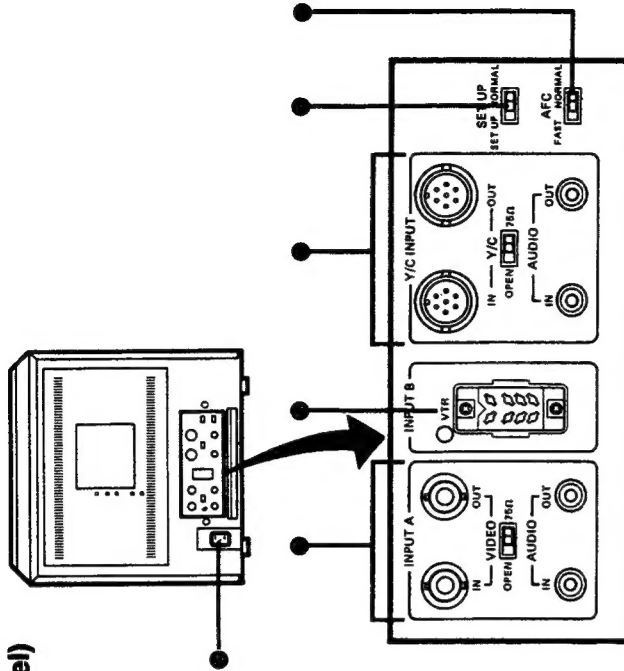
- ④ **SYSTEM switch**
Switches the colour system when a video signal is input.
PAL () : For PAL colour system
SECAM () : For SECAM colour system

- ⑤ **INPUT SELECT switches**
Press to select the video signals input to the rear connectors.
(Selecting the signals)
(1) Set the switch on the left to VIDEO or Y/C position.
VIDEO () : When monitoring a composite video signal

- (via the INPUT A or INPUT B connector on the rear panel)
Y/C () : When monitoring Y/C separate video signals
(via the Y/C INPUT connector on the rear panel)

- (2) While setting the left switch to 'VIDEO', set the switch on the right to A or B position.
A () : When monitoring a signal via the INPUT A connector
B () : When monitoring a signal via the INPUT B connector

(Rear Panel)



- **Power input connector**
Connect to an AC outlet with the provided power cord.

- **INPUT A connectors/Termination switch**
Input connectors for composite video and audio signals and output connectors for bridge-connected signals.
IN : When inputting a signal
OUT : For bridged connection

- Setting the termination switch
75 Ω : When there is only an input signal
OPEN : For bridged connection

- **INPUT B connector**
Input connector for composite video and audio signals from equipment that is provided with the same type of 8-pin VTR output connector.



- **Y/C INPUT connectors/Termination switch**
Input connectors for Y/C separate video and audio signals and output connectors for bridge-connected signals.
IN : When inputting signals
OUT : For bridged connection



- Setting the termination switch
75 Ω : When there are only input signals
OPEN : For bridged connection



- Caution: These connectors can only be connected to the Y/C443 connectors of the VTR; they cannot be connected to the other dubbing connectors (DUB, Y/C828, Y/C833, and etc.)

- **SET UP switch**
Do not reset this switch. It is for service personnel only.

- **AFC switch**
Switches the AFC time constant of the horizontal sync circuitry to correct the skewed portion of the picture.
FAST : Fast mode (Smaller time constant)
NORMAL : Normal mode

- ⑥ **UNDER SCAN switch**
Press to switch the scanning size on the screen.
() : for overscanning
() : for underscanning

- ⑦ **PULSE CROSS switch**
To check the retrace period (sync signal) by delaying the phase of the input signal.
OFF () : For normal picture
ON () : For retrace period check display

- ⑧ **COLOUR OFF switch**
Switches picture between colour and monochrome for checking white balance, etc.
() : For a colour picture
() : For a monochrome picture

- ⑨ **BLUE CHECK switch**
Switches the picture between normal and monochrome blue for checking and adjusting the CHROMA.

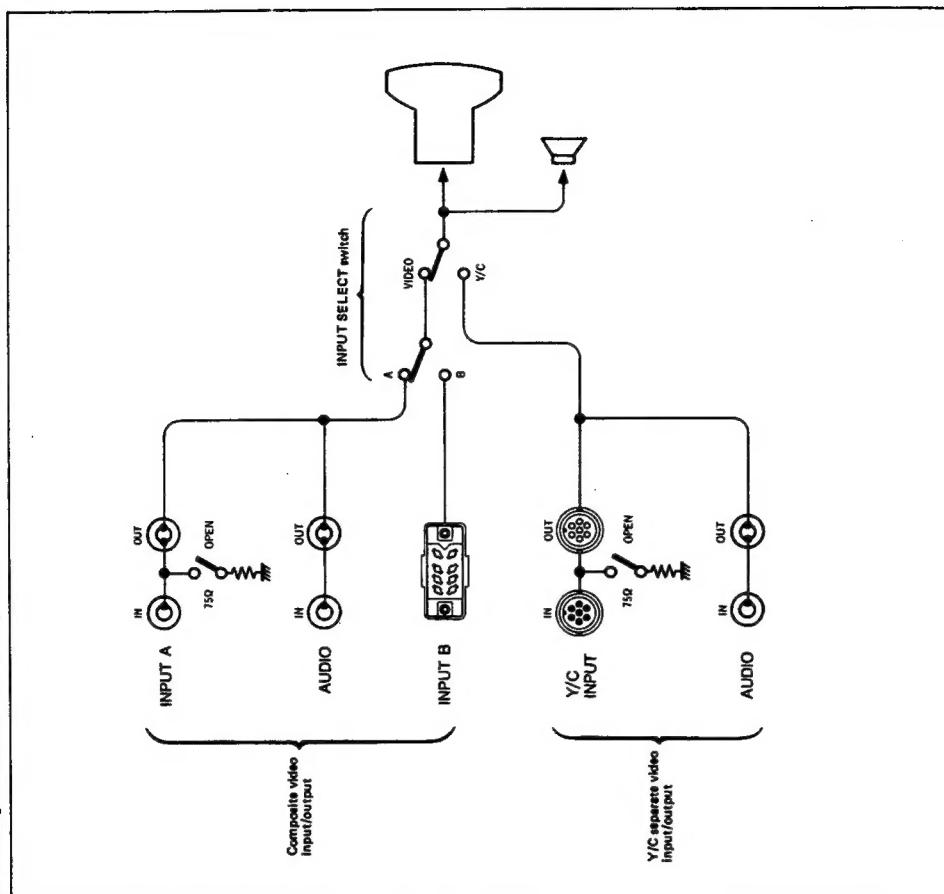
- Adjusting procedure
(1) Input the colour bar signal to display a monochrome blue picture.
(2) Turn the CHROMA control so that all blue bars have the same density and brightness.

- ⑩ **POWER switch/Indicator**
Pressing this switch turns the power on; the indicator lights. Pressing this switch again turns the power off; the indicator goes off.

- **PAL SUB CHROMA control**
This is for service personnel only. Do not touch this control.

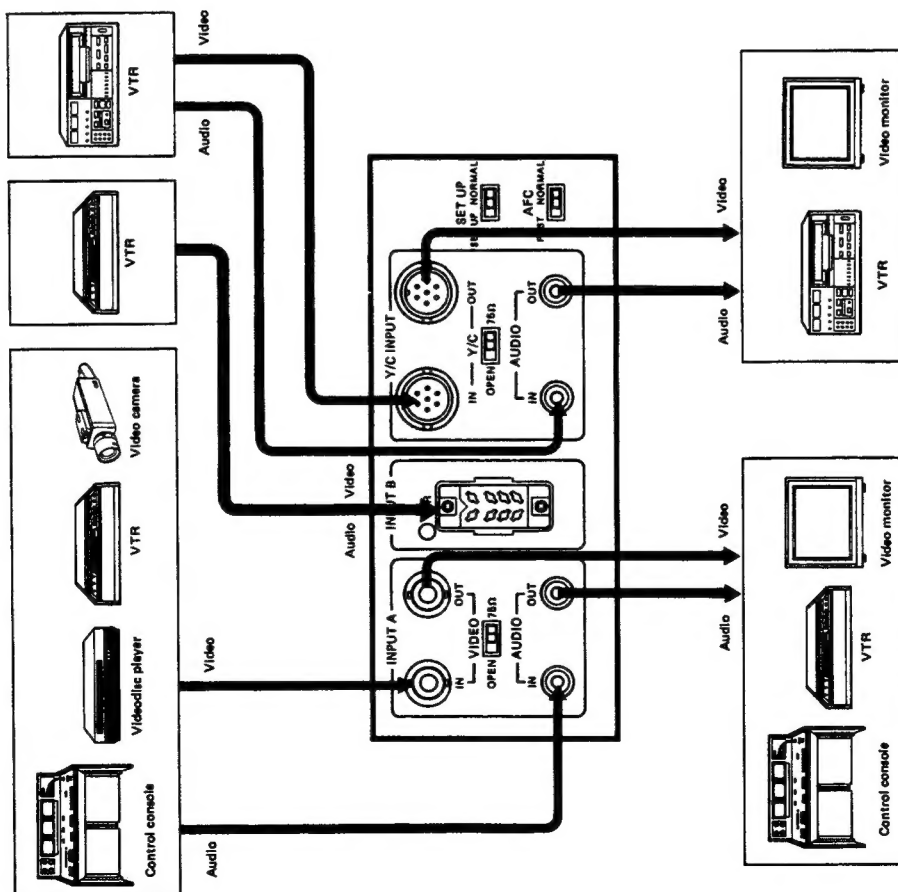
CONNECTIONS OUTLINE DIAGRAM

The following is an outline of the circuitry and connections, showing concepts. It is not a circuit diagram.



CONNECTIONS

- Be sure to disconnect the power plug from the AC outlet before connecting to other equipment.
- Also refer to the instruction manual of the equipment to be connected.



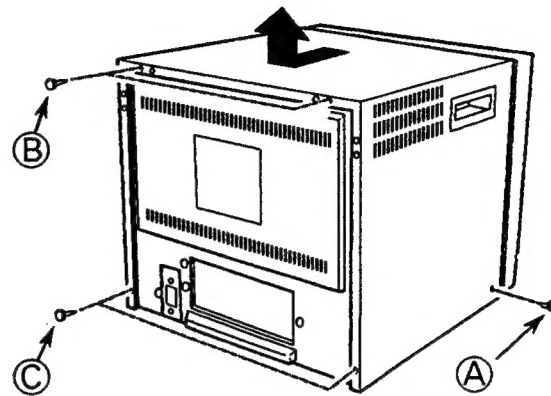
- When using any of the OUT connectors (bridged output), set its termination switch to "OPEN".

SPECIFIC SERVICE INSTRUCTIONS

DISASSEMBLY PROCEDURE

1. Method of removing the top cover

- (1) Remove the two screws (A) in Fig. 1.
- (2) Remove the respectively two screws (B) and (C).
- (3) By pulling the cover a little bit backward, dismount the cover as indicated by an arrow.



Also remove the screw on the opposite side.

Fig. 1

2. Method of dismounting the rear cover

- Dismount the top cover.
- (1) Remove the two screws (D) in Fig. 2-1.
- (2) Pull the rear cover right upward until it stops as indicated by the arrow, and dismount the cover.

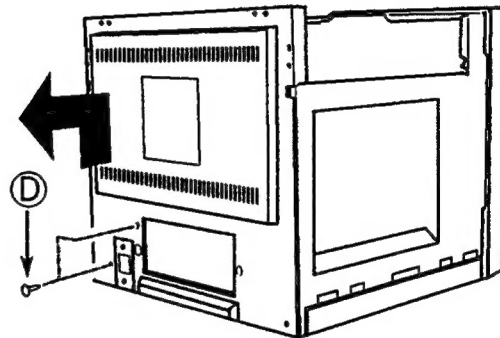


Fig. 2-1

For assembly,

- (1) Since the four positions (E) in Fig. 2-2 are hooked, align the hooks straight and let them move down.

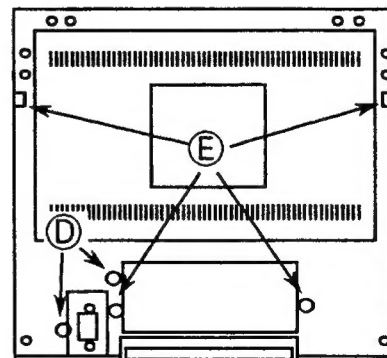


Fig. 2-2

3. Method of dismounting Input PCB

- Dismount the top cover.
- Dismount the rear cover.
- (1) Remove the three screws ⑥ in Fig. 3.
- (2) Remove the GND wire.
- (3) When the two hooks between the Main and Input PCBs are removed, the Input PCB will be dismounted.
- (4) Dismount the connectors, etc. as required.

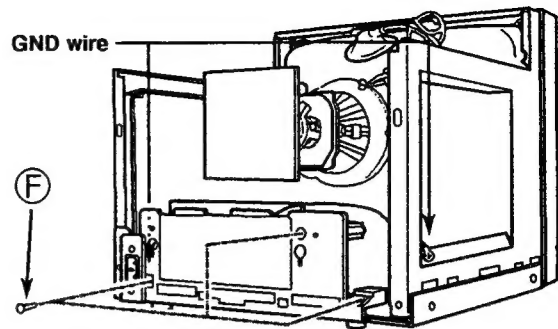


Fig. 3

4. Method of dismounting Power PCB

- Dismount the top cover.
- (1) Remove the wire clamp fixing the transformer on the Power PCB and PCB holder.
- (2) Remove the four screws ③ in Fig. 4 and dismount the PCB holder.
- (3) Remove the two screws ④.
- (4) After raising the Power PCB once, pull the lower part of the PCB outward and dismount the PCB.
- (5) Dismount the connectors, etc. as required.

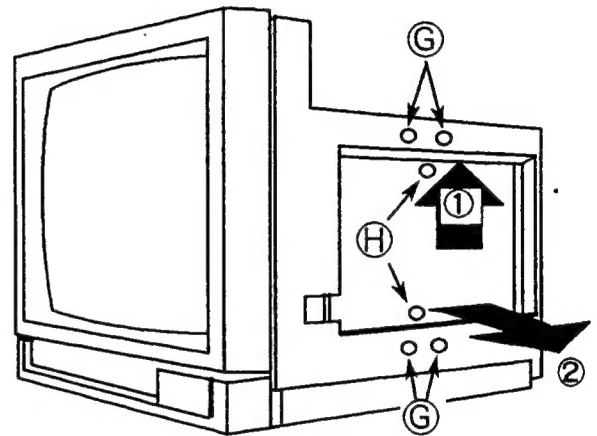


Fig. 4

5. Method of checking the Main PCB

- Dismount the top cover.
- Dismount the rear cover.
- (1) Set the TV set sideways as shown in Fig. 5. In this case, lay soft cloth, etc. under the set in advance to prevent any damage to the exterior part.
- (2) Remove the four screws ① and dismount the bottom lid.
- (3) Shift the Main PCB as required.

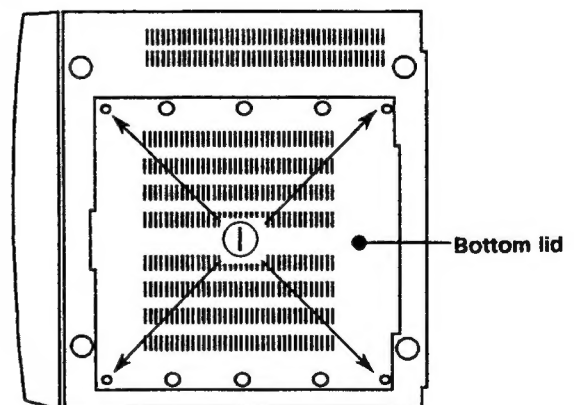


Fig. 5 (Bottom surface view)

6. Method of dismounting front panel ass'y

- Dismount the top cover.
- Dismount the rear cover.
- (1) Remove the speaker chord (Main PCB [G]).
- (2) Remove the chord of degauss coil (Power PCB [I]).
- (3) Remove the two chords of deflecting coil (Main PCBs [H] and [V]).
- (4) Remove the anode cap.
 - Pay attention to the high tension!!
 - Since the cap will be electrified, be sure to remove the cap after discharging.
- (5) After removing the [CRT EARTH] chord, pull out the CRT socket PCB.

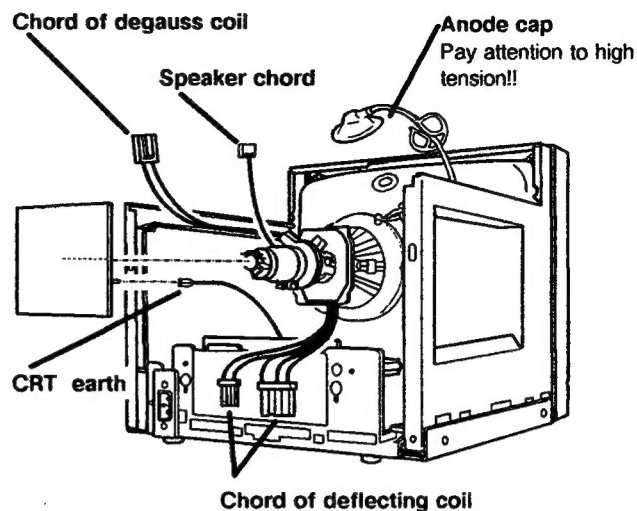


Fig. 6-1

- (6) When the four screws ① are removed, the front panel ass'y will be dismounted together with the CRT.
 - Since the CRT is heavy, remove the screws ① while holding the front panel ass'y.

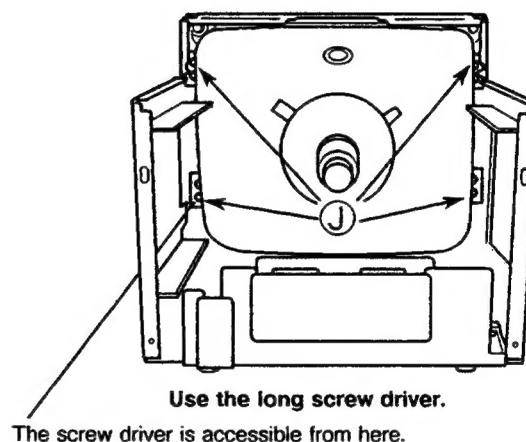


Fig. 6-2

7. Method of dismounting speakers

- Dismount the top cover.
- Dismount the rear cover.
- Dismount the front panel ass'y.
- (1) Remove the speaker chord (Main PCB [G]).
- (2) Remove the two screws fixing the speaker to the front panel ass'y.
 - Unless the front panel ass'y has been dismounted from the TV set body, it is impossible to mount the speaker.

8. Precautions for wire clamp and binding band

- (1) The wire should be clamped exactly.
- (2) Be sure not to remove the binding band for wire treatment. Should it be removed, the wire should be treated exactly to the initial position.

SERVICE ADJUSTMENTS

PRIOR TO STARTING ADJUSTMENT

- Dismount the top cover, rear cover and bottom lid.
- Perform sufficient warm-up of the TV set and testers.
(for 30 minutes or more).
- Unless specified otherwise specially in [ADJUSTING STEP] given below, perform adjustment after setting the switches and VRs on the front panel to the following positions:
 BLUE CHECK : OFF
 COLOUR OFF : OFF
 PULSE CROSS : OFF
 UNDER SCAN : OFF
 SYSTEM SW : PAL
 INPUT SELECT : VIDEO A
 CONTRAST : CLICK position
 BRIGHT : CLICK position
 CHROMA : CLICK position
 PHASE : CLICK position
- Regarding the list of the layout of adjusted parts, refer to [ADJUSTMENT LOCATION] in [SCHEMATIC DIAGRAM].

TOOLS AND FIXTURES FOR ADJUSTMENT

- DC voltmeter or digital voltmeter
- Oscilloscope
- Pattern generator (PAL)
 - If monoscope signal can be output, it is possible to perform further accurate adjustment.
 - The signal should be input to VIDEO A.
- Color thermometer
 - Adjustment is possible without it. If available, however, further accurate adjustment is possible.
- Short jumper
- 10k Ω resistor

In addition to the above, the following tools are necessary to adjust the purity and convergence.

- Magnetic eraser
- Silicon bond (KE4866)
- REICHLOCK or G2 bond

ADJUSTING STEP

POWER PCB

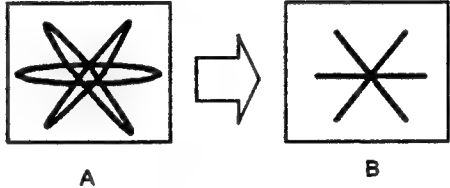
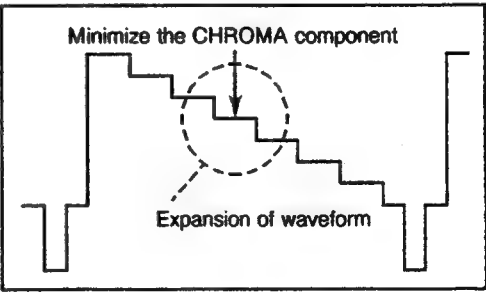
Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of B1 VOLTAGE	PATTERN GENERATOR DC VOLTMETER or DIGITAL VOLTMETER	TP-91 TP-E(\nearrow)	R913(B1 ADJUSTMENT)	1. Input the total black signal. 2. Adjust the B1 adjust VR (R913) so that the voltage between TP-91 and TP-E (\nearrow) becomes DC 110V. 3. Confirm that the B1 voltage scarcely changes even when the input signal has been changed.

● TP-E
● TP-91

POWER PCB

● R913

MAIN PCB (1)

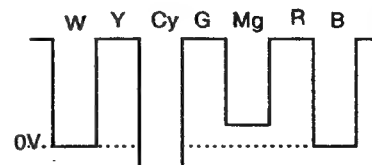
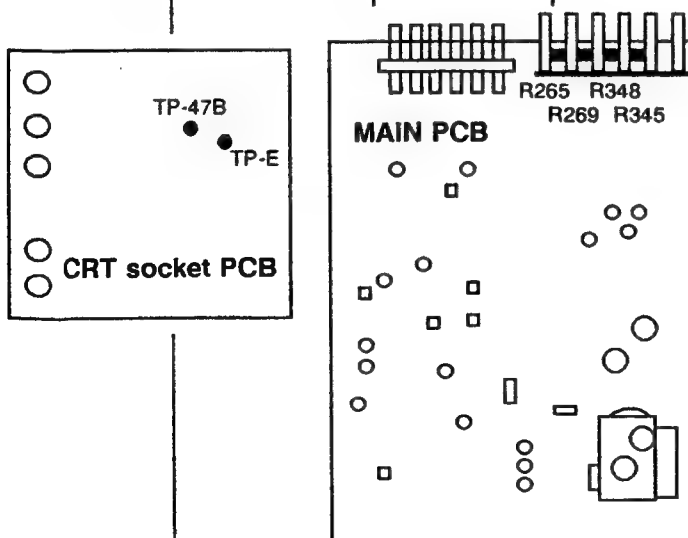
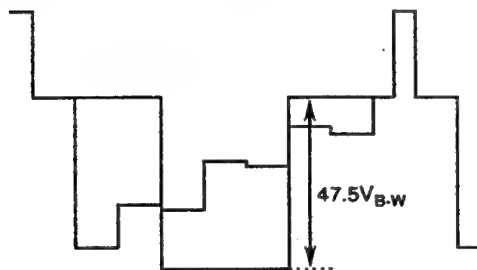
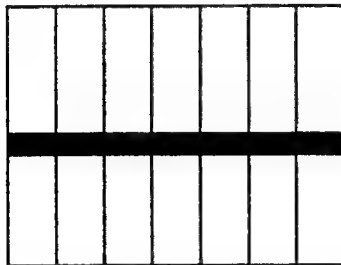
Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of PAL APC	PATTERN GENERATOR SHORT JUMPER 10 kΩ RESISTOR	TP-40 IC301 14Pin TP-92 TP-E	C320 C323 (DL AMP) C332 C331 C339	<ol style="list-style-type: none"> 1. Input the color bar signal. 2. Connect IC301 14Pin and TP-E with a short jumper. 3. Connect TP-40 and TP-92 with a 10kΩ resistor. 4. Adjust the COLOR SYNC. VR (C320) to a position where the color changes from a striped pattern to a color bar and remains at a standstill. 5. Connect the oscilloscope to TP-48 and TP-49, and plot the X-Y coordinates. 6. Adjust with R323 and R332, C331 so that the waveforms are the shapes shown from A to B in the chart below.  <ol style="list-style-type: none"> 7. When it is not possible to adjust with the two VRs, adjust with C339. 8. Input the half color bar. 9. Adjust with C320 so that the color at the center section under the color bar is at minimum.
Adjustment of NOCTH CIRCUIT	PATTERN GENERATOR OSCILLOSCOPE	TP-64 (Y)	C236	<ol style="list-style-type: none"> 1. Input the color bar signal. 2. Connect the oscilloscope between TP-64 and TP-E. In case the waveform can be expanded by the oscilloscope, expand the waveform to allow easy adjustment. 3. Adjust the C236 so that the CHROMA component becomes minimum. 

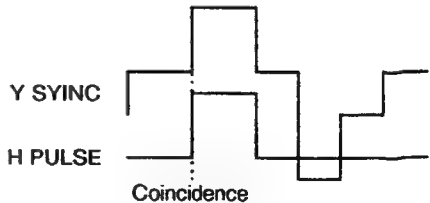
CRT socket PCB

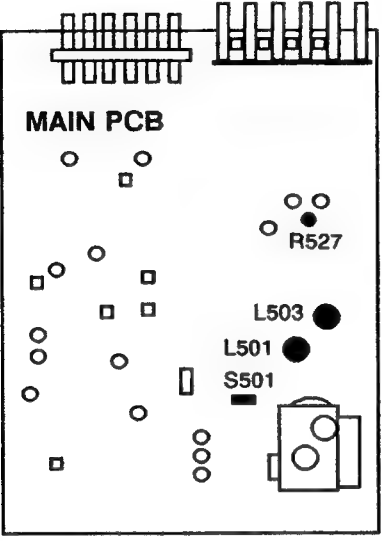
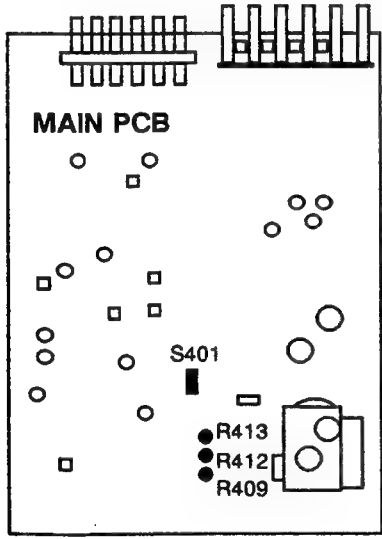
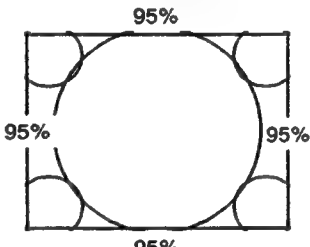
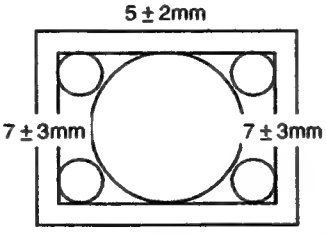
Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of CUTOFF	PATTERN GENERATOR		R705 :R R715 :G R725 :B SCREEN VR	<ul style="list-style-type: none"> Continue running for 10 minutes or more. <ol style="list-style-type: none"> 1. Input the total white signal. 2. Turn the transverse one line [SET UP] switch (S203) on the rear surface over to the [SET UP] side. 3. Turn the [CUT OFF] VRs (R705, R715 and R725) on the CRT socket PCB fully in counterclockwise direction. 4. While turning the screen VR gradually in clockwise direction from full counterclockwise direction, search for the color appearing for the first time. 5. Turn the [CUT OFF] VRs, with which the color has appeared first in the Step 4, slightly in clockwise direction. 6. By turning the [CUT OFF] VRs for the other two colors in clockwise direction, adjust the intensity of the three shining colors so that the transverse single line look white. 7. Return the transverse single line [SET UP] switch (S203) to the [NORMAL] side.
Adjustment of WHITE BALANCE	PATTERN GENERATOR		R702 :R DRV R712 :G DRV	<ul style="list-style-type: none"> Continue running for 30 minutes or more. This adjustment should be performed after [Adjustment of CUTOFF]. <ol style="list-style-type: none"> 1. Input the total white signal. 2. Adjust the R and G DRIVER VRs (R702 and R712) on the CRT socket PCB to a position where the entire screen becomes white. 3. While turning the CONTRAST VR and BRIGHT VR on the front panel, make sure that the white balance is attained. <p>[In case monoscope signal and color temperature meter are available]</p> <ol style="list-style-type: none"> 1. Input the monoscope signal. 2. The light receiving unit of the color temperature meter will measure the color temperature at the center of the screen. 3. Adjust the CONTRAST VR, R and G DRIVER VRs (R702 and R712) on the CRT socket PCB to a position where the color temperature meter indicates a specified value. <ul style="list-style-type: none"> Color temperature : D9300°K ($x=0.283$, $y=0.297$) 4. While turning the CONTRAST VR and BRIGHT VR on the front panel, make sure that the white balance is attained.

MAIN PCB (2)

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of SUB BRIGHT	PATTERN GENERATOR		R269 (SUB BRIGHT)	<ul style="list-style-type: none"> Continue running for 30 minutes or more. This adjustment should be performed after [Adjustment of CUTOFF]. Set the CONTRAST and BRIGHT VRs on the front panel to the clicking position. <ol style="list-style-type: none"> Input the color bar signal. Turn the V. HOLD VR to display the vertical flyback time and let it remain at a standstill. Adjust the SUB BRIGHT VR (R269) in front of the position where the vertical flyback time becomes black (In this case, be careful so that it will not become too bright). Adjust the vertical synchronism with the V. HOLD VR.
Standard setting of CONTRAST	PATTERN GENERATOR OSCILLOSCOPE	TP-47B TP-E	R265	<ul style="list-style-type: none"> This adjustment should be performed after [Adjustment of SUB BRIGHT] Set the CONTRAST and BRIGHT VRs on the front panel to the clicking position. <ol style="list-style-type: none"> Input the color bar signal (including 100% white signal). Turn the CHROMA VR on the front panel and turn the screen to black and white. Connect the oscilloscope between TP-47B and TP-E on the CRT socket PCB. Adjust the SUB CONT. VR (R265) so that the voltage of the waveform becomes $47.5V_{B-W}$. Release the CHROMA VR on the front panel to return the screen to color.
Adjustment of CHROMA	PATTERN GENERATOR OSCILLOSCOPE	TP-47B TP-E	R345 (Sub PAL Chroma) R348 (Sub Chroma)	<ul style="list-style-type: none"> This adjust should be performed after [Standard setting of contrast]. Turn the CHROMA VR on the front panel to the click position. <ol style="list-style-type: none"> Turn the SYSTEM SW to SECAM. Input the SECAM color bar. Connect TP-47B of the CRT socket PCB to the oscilloscope. Turn R348(Sub Chroma) to adjust the white and blue levels. Return the SYSTEM SW to PAL. Turn R345(Sub PAL Chroma) to set the difference of white and blue to 0V.

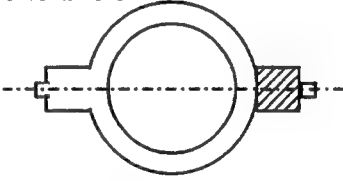
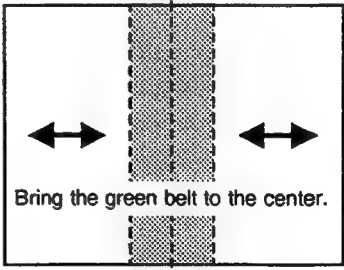
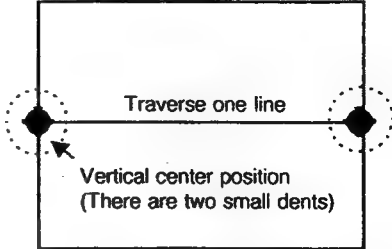



Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of FOCUS	PATTERN GENERATOR		FOCUS VR	<ul style="list-style-type: none"> This adjustment should be performed after [Standard setting of CONTRAST]. 1. Input the cross hatch signal. 2. Adjust the FOCUS VR to a position where the vertical and horizontal lines of cross hatch become thinnest and clearest. <p>Note: Be sure to perform final adjustment of the convergence after adjustment of focus, since the convergence will be changed whenever the focus has been adjusted.</p>
Adjustment of HORIZONTAL SYNCHRONISM	PATTERN GENERATOR SHORT JUMPER	TP-33A	R505 (H FREQ.)	<ul style="list-style-type: none"> Set the CONTRAST VR on the front panel to the clicking position. 1. Input the color bar signal. 2. Connect TP-33A and TP-E with a short jumper. 3. Adjust the H. HOLD VR (R505) to a position where the image remains at a standstill without flowing horizontally. • Namely, adjust the VR to an intermediate position where the image flows horizontally. 4. Remove the connected short jumper. 5. Make sure that the color synchronism is not collapsed and normal image appears instantaneously when returned to the color bar signal again after changing the input select switch.
Adjustment of H PULSE	PATTERN GENERATOR OSCILLOSCOPE	TP-64 TP-70	C334 R379 (PULSE PHASE)	<ol style="list-style-type: none"> Input the color bar signal. Connect the oscilloscope to TP-64 and TP-70, set to the dual-trace and increase the SYNC section. Adjust with C334 so that the SYNC forward line of the Y signal and the start of the H PULSE coincide.  <ol style="list-style-type: none"> Confirm that the waveform phase does not slip even when the pulse cross SW is pressed. If the phase slips, use R379 to adjust so that the H PULSE does not come to the left side (leading phase) of the SYNC of Y signal.

Item	Measuring instrument	Test point	Adjustment part	Description
Adjustment of H. AMPLITUDE and H. CENTER	PATTERN GENERATOR 		L501 S501 (H CENTER) L503 R527 (H POSITION)	<ul style="list-style-type: none"> This adjustment should be performed after [Adjustment of B1 VOLTAGE] and [Adjustment of HORIZONTAL SYNCHRONISM]. <ol style="list-style-type: none"> Input the monoscope signal or cross hatch signal. Select the [OVER SCAN] screen with the [UNDER SCAN] switch on the front panel. With the horizontal amplitude coil (L501) and [H. CENTER] switch (S501), perform adjustment so that 95% of monoscope pattern (cross hatch) is displayed on the screen. Select the [UNDER SCAN] screen with the [UNDER SCAN] switch on the front panel. Adjust the horizontal amplitude coil (L503) so that the distance from both sides of the CRT to the edge of image becomes 7 ± 3 mm. In case the image is chipped off from the raster, adjust the H. POSITION VR (R527). Select the [OVER SCAN] screen with the [UNDER SCAN] switch on the front panel.
Adjustment of V. AMPLITUDE, V. CENTER and V. LINEARITY	PATTERN GENERATOR 	 95% 95% 95% 95% [OVER SCAN] screen  5 ± 2mm 7 ± 3mm 7 ± 3mm 5 ± 2mm [UNDER SCAN] screen	R413 S401 R409 R412	<ol style="list-style-type: none"> Input the monoscope signal or cross hatch signal. Select the [OVER SCAN] screen with the [UNDER SCAN] switch on the front panel. Roughly adjust the V. HEIGHT VR (R413) so that nearly all the monoscope pattern (cross hatch) is displayed on the screen. With the V. HEIGHT VR (R413) and V. CENTER switch (S401), perform adjustment so that 95% of the monoscope pattern (cross hatch) is displayed on the screen. While turning the V. LIN. VR (R409), adjust the vertical linearity. Repeat the Steps 3 - 5 as required. Select the [UNDER SCAN] screen with the [UNDER SCAN] switch on the front panel. Adjust the V. HEIGHT VR (R412) so that the distance from upper and lower edges of the CRT to the end of image becomes 5 ± 2 mm. Perform fine adjustment of the center and vertical linearity so that displacement of adjustment will not occur even if the UNDER SCAN switch on the front panel has been changed over. Select the [OVER SCAN] screen with the [UNDER SCAN] switch on the front panel.
Adjustment of CHROMA DISCRIMINATION	PATTERN GENERATOR		T304 T305 [SECAM MODULE]	<ul style="list-style-type: none"> Continue running for 30 minutes or more. This adjustment should be performed after [Adjustment of white balance]. Turn the SYSTEM SW to SECAM. <ol style="list-style-type: none"> Input the SECAM color bar. Adjustment T304 and T305 so that the color of the white section remains the same regardless of whether the COLOR OFF SW is ON or OFF. <ul style="list-style-type: none"> Return the SYSTEM SW to PAL.

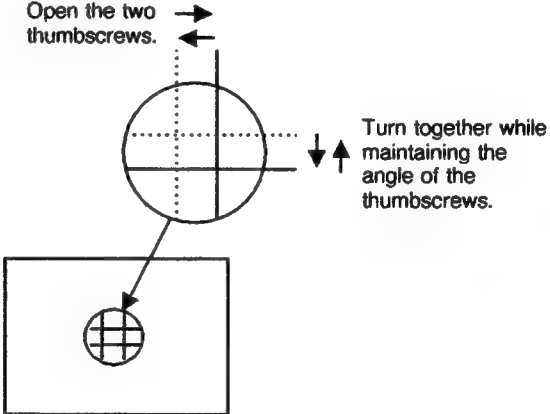
ADJUSTING STEP OF COLOR TONE

ADJUSTMENT OF PURITY

Adjustment Part	Description	Remarks
Wedge Purity magnet G cutoff VR R cutoff VR B cutoff VR Screen VR Deflecting yoke Traverse one line [SET UP] switch	<p>PRIOR TO STARTING ADJUSTMENT:</p> <ol style="list-style-type: none"> 1. Remove the wedge being inserted in between the deflecting yoke. At this time, clear the trace of the wedge. 2. Peel off the adhesive fixing six magnets with the tip of screw driver, etc. so that the magnets will turn freely. 3. Input the total white signal. 4. Perform magnetic erasing of the Brown tube with a magnetic eraser. 5. Set the brightness and picture to slightly higher levels, and perform warm-up roughly for 20 - 30 minutes. <p>ADJUSTING STEP</p> <ol style="list-style-type: none"> 1. By turning the G CUTOFF VR on the CRT socket board fully in clockwise direction and the R and B CUTOFF VR fully in counterclockwise direction, adjust the screen VR to make the green screen visible. 2. After loosening the clamp screw of the deflecting yoke, pull the yoke fully backward, and let color shading appear in a vertical belt form. 3. Pile up the clicks of the two purity magnets alternately each other, and set them to a horizontal position as an initial. 4. While opening and closing or turning the clicks of the two purity magnets, perform adjustment so that the green vertical belt appears at the center of the screen. 5. By pushing out the deflecting yoke to the front side, position the yoke so that the entire screen becomes totally green (In this case, tentatively fix the deflecting yoke with a wedge so that the yoke is not moved). 6. Set the traverse one line [SET UP] switch to the [SET UP] side to display traverse one line on the screen. With the deflecting yoke, make the traverse one line horizontal and further close to the vertical center (Do not change the cross position of the deflecting yoke) 7. Return the transverse single line [SET UP] switch to the [NORMAL] side. 	<div data-bbox="1050 770 1334 1039"> </div> <p>Align the two purity magnets to a horizontal level.</p>   <p>Bring the green belt to the center.</p>  <p>Traverse one line Vertical center position (There are two small dents)</p> <p>Let the traverse one line approach between both of the white dents denoted by:</p>


Adjustment Part	Description	Remarks
	<p>8. Confirm that the purity has been attained with regard to the red, blue and monicolor rasters.</p> <p>9. Tentatively fix the deflecting yoke slightly with the clamp screw to prevent its movement in back and forth direction.</p> <p>10. Restore the wedges to the initial position and fix the deflecting yoke.</p> <p>Use three wedges of a V-form and set them respectively at an interval of about 120°. The wedges should be fixed to the Brown tube using silicon bond (KE4866)</p> <p>11. The clamp screw of the deflecting yoke should be clamped firmly with an adequate torque.</p>	<p>The wedges should be fixed at three positions at an interval of about 120°.</p> 

ADJUSTMENT OF CONVERGENCE

Adjustment Part	Description	Remarks
CONVERGENCE MAGNET	<p>ADJUSTING STEP</p> <ol style="list-style-type: none"> 1. Input the cross hatch signal. 2. Overlap the red and blue lines at the center of the screen with 4-pole magnet to turn the color to Magenta color (red/blue). 3. Next, overlap the Magenta color (red/blue) and green lines at the center of the screen with 6-pole magnet. 4. Repeat the Steps 2 and 3, and adjust the convergence of the vertical and horizontal lines at the center of the screen. 	
	<p>AFTER COMPLETION OF ADJUSTMENT</p> <ol style="list-style-type: none"> 1. Subsequent to completing adjustment of the purity and convergence, fix the six magnets using an adhesive (G2 bond or REICHLOCK). 2. Then, be sure to adjust the boards on Page 1 - 13 and after. 	

PARTS LIST

CAUTION

- The parts marked  are very important for the safety. When replacing these parts, be sure to use specified ones to secure the safety and performance.
- The module circuit board is supplied together with the assembly, but the parts which do not have the drawing in this Parts List, P. C. Board Ass'y and the Parts No. columns of which are filled with lines — . will not be supplied.
- As a rule, the resistors and capacitors which are indicated as shown in (NOTE 2) "HOW TO EXPRESS PARTS NUMBERS OF STANDARD PARTS" are not shown in the list of the parts on the board.
When ordering the service parts, confirm the resistance/rated power, capacitance/rated voltage, and type of the parts, then order by the part No. indicated according to (NOTE 2).

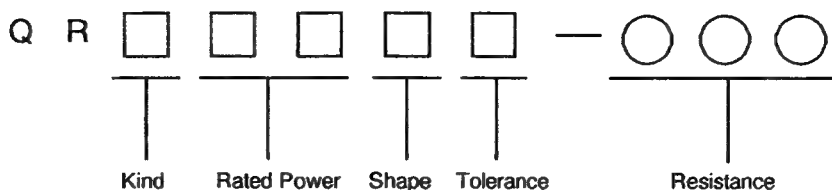
(NOTE 1) ABBREVIATIONS OF RESISTORS, CAPACITORS AND TOLERANCES

RESISTORS		CAPACITORS	
C R	Carbon Resistor	C CAP.	Ceramic Capacitor
F R	Fusible Resistor	E CAP.	Electrolytic Capacitor
P R	Plate Resistor	M CAP.	Mylar Capacitor
V R	Variable Resistor	HV CAP.	High Voltage Capacitor
HV R	High Voltage Resistor	MF CAP.	Metalized Film Capacitor
MF R	Metal Film Resistor	MM CAP.	Metalized Mylar Capacitor
MG R	Metal Glazed Resistor	MP CAP.	Metalized Polystyrol Capacitor
MP R	Metal Plate Resistor	PP CAP.	Polypropylene Capacitor
OM R	Metal Oxide Film Resistor	PS CAP.	Polystyrol Capacitor
CMF R	Coating Metal Film Resistor	TF CAP.	Thin Film Capacitor
UNF R	Non-Flammable Resistor	MPP CAP.	Metalized Polypropylene Capacitor
CH V R	Chip Variable Resistor	TAN. CAP.	Tantalum Capacitor
CH MG R	Chip Metal Glazed Resistor	CH C CAP.	Chip Ceramic Capacitor
COMP. R	Composition Resistor	BP E CAP.	Bi-Polar Electrolytic Capacitor
LPTC R	Linear Positive Temperature Coefficient Resistor	CH AL E CAP.	Chip Aluminum Electrolytic Capacitor
		CH AL BP CAP.	Chip Aluminum Bi-Polar Capacitor
		CH TAN. E CAP.	Chip Tantalum Electrolytic Capacitor
		CH AL BP E CAP.	Chip Tantalum Bi-Polar Electrolytic Capacitor

TOLERANCES									
F	G	J	K	M	N	R	H	Z	P
± 1%	± 2%	± 5%	± 10%	± 20%	± 30%	+ 30% - 10%	+ 50% - 10%	+ 80% - 20%	+ 100% - 0%

(NOTE 2) HOW TO EXPRESS PARTS NUMBERS OF STANDARD PARTS

■ RESISTOR



Symbol	Part Name
C	COMP.R
D	C R
S	CH MG R

Symbol	Rated Power
0 1	1 w
1 2	1/2 w
1 4	1/4 w
1 6	1/6 w
1 8	1/8 w

Symbol	Shape
1	Straight lead
8	Chip

Indicate with first two-figure expressed by Ω and following 0.
 please note that, in case of resistance less than 10 Ω , a letter "R" will be effective as point.

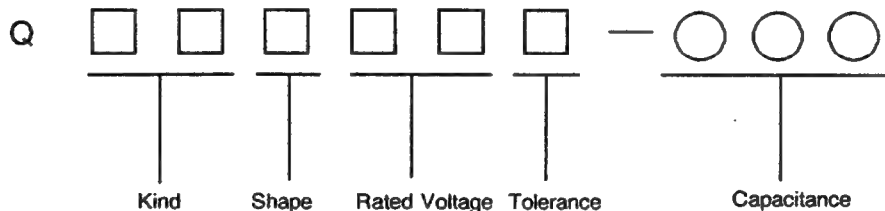
EX.

$$2.2 \Omega = 2R2$$

$$470 \Omega = 47 \times 10^1 \rightarrow 471$$

$$150k\Omega = 15 \times 10^4 \rightarrow 154$$

■ CAPACITOR



Symbol	Part Name
CS	C CAP.
CS	CH C CAP.
ET	E CAP.
FM	M CAP.

5Figure \ 6Figure	0	1	2
A		10V	100V
C		16V	160V
D			200V
E		25V	250V
H		50V	500V
J	6.3V	63V	
V		35V	

Indicate with first two-figure expressed by pF and following 0.

Please note that, in case of capacitance less than 10 pF a letter "R" will be effective as point.

EX

$$5pF = 5R0$$

$$1000pF = 10 \times 10^2 \rightarrow 102$$

$$47\mu F = 47 \times 10^6 \rightarrow 476$$

Symbol	Shape
1	Straight lead
1	Leads in the same direction
8	Chip
A	Leads in the same direction (compact part)

MAIN PARTS LIST

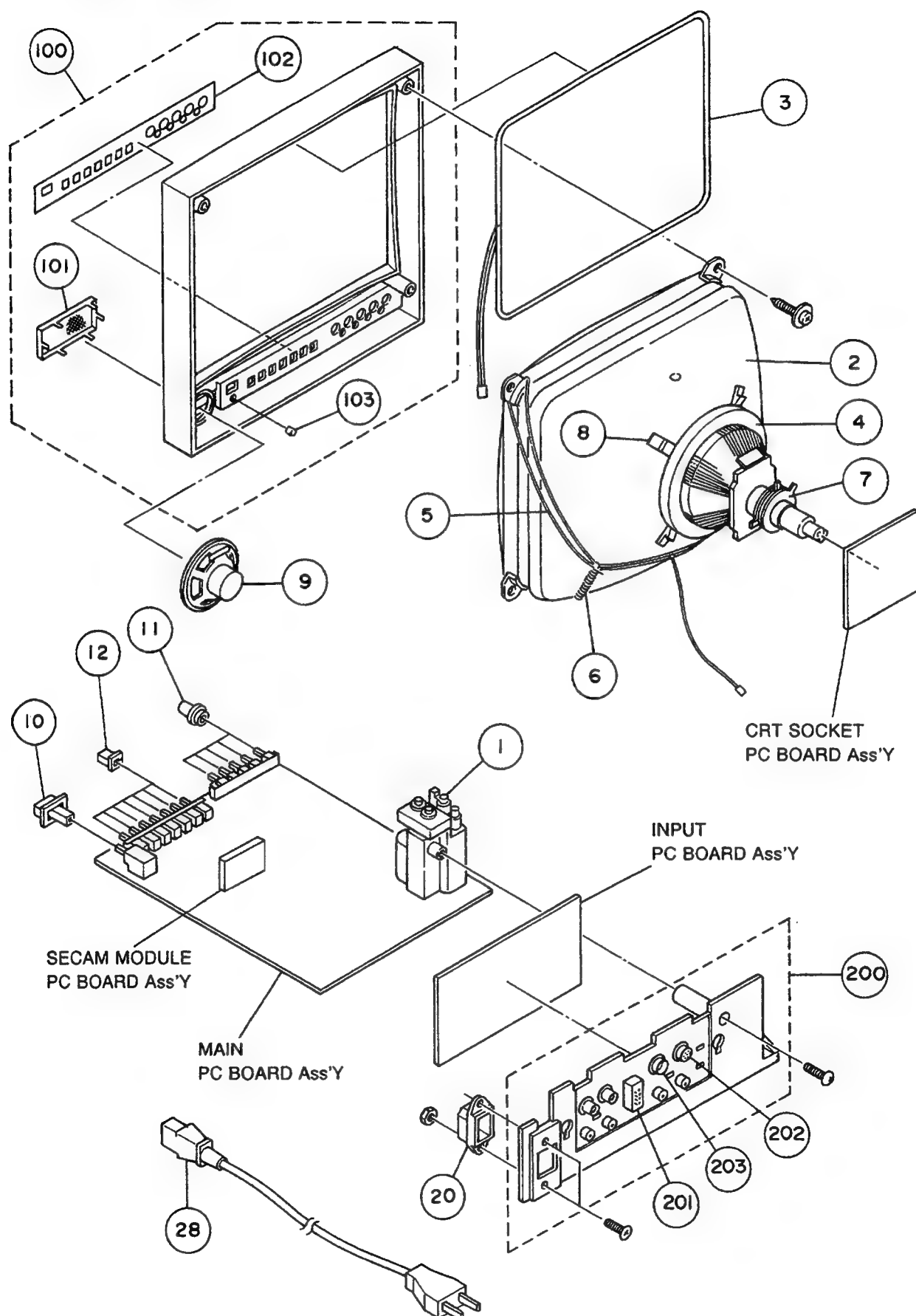
SYMBOL NO.	△	PART NO.	PART NAME	REMARKS
CRT & TUNER		A75034-B	P&C MAGNET	
		CE40764-00A	WEDGE ASSY	X4
	△	CE20168-A0A	DEFLECTION YOKE	DY01
	△	CELD011-003	DEG COIL	L01
	△	M36JGK90X	PICTURE TUBE	V01
VARIABLE R		QVAZ005-C004A	VR (CONT. BRIGHT)	CHROMA PHASE VOL. et
R1101		QVPA603-103A	VR (SUB CONTRAST)	10kΩ B
R1265		QVPA603-103A	VR (SUB BRIGHT)	10kΩ B
R1269		QVPC611-202HZ	VR (DL AMP)	2kΩ B
R1323		QVPA603-223A	VR (PAL SUB COLOR)	22kΩ B
R1345				
R1348		QVPA603-103A	VR (SUB CHROMA)	10kΩ B
R1379		QVPC611-104HZ	VR (PULSE PHASE)	100kΩ B
R1409		QVPC611-501HZ	VR (V. LIN.)	500 Ω B
R1412		QVPC611-102HZ	VR (V. HEIGHT UND)	1kΩ B
R1413		QVPC611-501HZ	VR (V. HEIGHT NOR)	500 Ω B
R1505		QVPC611-502HZ	VR (H. HOLD)	5kΩ B
R1527		QVPC611-103HZ	VR (H. POSITION)	10kΩ B
R3702		QVPE805-201H	VR (R DRIVE)	200 Ω B
R3705		QVPE805-502H	VR (R CUT OFF)	5kΩ B
R3712		QVPE805-201H	VR (G DRIVE)	200 Ω B
R3715		QVPE805-502H	VR (G CUT OFF)	5kΩ B
R3725		QVPE805-502H	VR (B CUT OFF)	5kΩ B
R9913		QVPE805-503H	VR (B1 ADJ.)	50kΩ B
TRANSFORMER				
T1502	△	CE40361-00B	SW DRIVE TRANSF	
	△	CJ27379-00A	FLYBACK TRANSF.	T501
T9901	△	CE41100-00B	SW. TRANSF.	
T9902	△	CE41059-00B	DRIVE TRANSF.	
DIODE				
D1205		RD5.1ES (B3) -T2	ZENER DIODE	
D1409		MA4051 (M)	ZENER DIODE	
D1410		MA4056 (M) -T2	ZENER DIODE	
D1502	△	HZ7B2L-C1	ZENER DIODE	
D1506		MA4100 (M) -T2	ZENER DIODE	
D1516		MA4220 (M) -T2	ZENER DIODE	
D1518		V19E-T3	SI. DIODE	
D1950		GL5PG23	L. E. D	Power
D9905	△	LB-156-LFB	DIODE BRIDGE	
D9908		R2M-LFA1	SI. DIODE	
TRANSISTOR				
Q1504	△	2SD1554-LB	SI. TRANSISTOR	H OUT.
IC				
IC1202		MC14066BCP	I. C.	or TC4066BP
IC1203		AN5615	I. C.	
IC1301		AN5625N	I. C.	
IC1302		TC4538BP	I. C. (M)	
IC1401	△	AN5521	I. C. (M)	
IC1501	△	HA11423	I. C.	
IC1502		MC7812CT	I. C.	or TA78012AP
IC1602		AN5265	I. C. (M)	
IC1801		MC14538BCP	I. C.	or TC4538BP
IC1802		MC14066BCP	I. C.	or TC4066BP
IC1803		MC14538BCP	I. C.	or TC4538BP
IC1804		MC14538BCP	I. C.	or TC4538BP
IC6201		LA7016	I. C.	
IC6601		MC14066BCP	I. C.	or TC4066BP
IC9901	△	STR54041S	I. C. (H)	

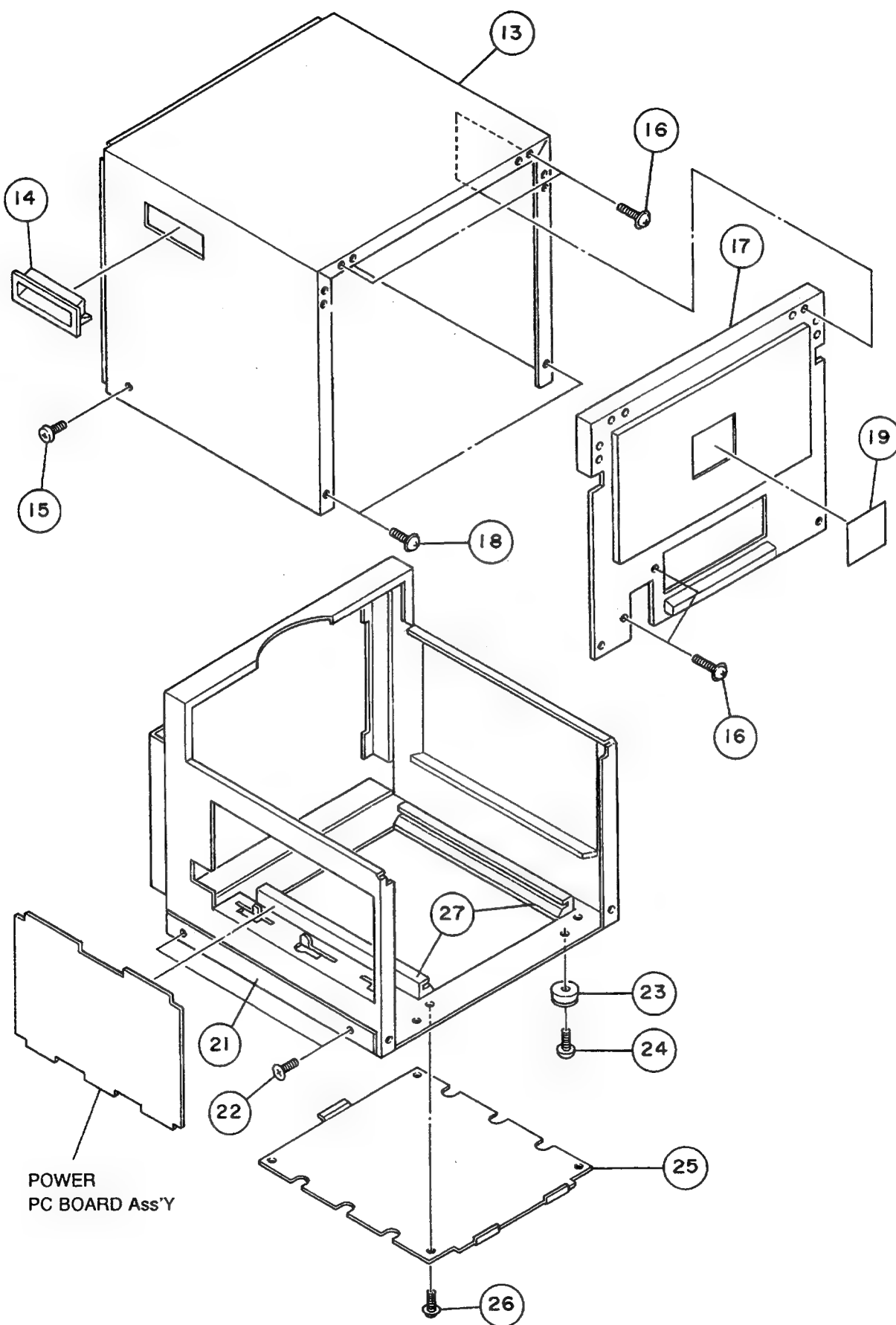
SYMBOL NO.	△	PART NO.	PART NAME	REMARKS
OTHERS				
	△	CM21945-00B QMCB005-001 CM11677-C0C-M0 EAS-45P38B CM46115-A01	TERMINAL ASSY 3P INLET FRONT PANEL ASSY SPEAKER POWER KNOB	SP01
		CM46043-B01 CM46044-001 CM11679-A01-M0	VOL KNOB PUSH KNOB REAR COVER	X5 X7
	△	QMP4718-200R SBX-S004A	POWER CORD SECAM MODULE PC	
CP1501		ICP-F50	IC PROTECTOR	
DL1201		CE41679-001	DELAY LINE	
FR9908	△	QRZ0054-100M	F R	10 Ω 1/4W J
F9901	△	QMF51E2-3R15S	FUSE	3.15A
LF9901	△	CE40847-00C	LINE FILTER	
LF9902	△	CE40847-00C	LINE FILTER	
RY1501	△	CESK006-001	RELAY	
S1101		QST2731-C01	PUSH SWITCH	
S1401		QSL4A13-C02	LEVER SWITCH	V. Center SW
S1501		QSL4A13-C02	LEVER SWITCH	H. Center SW
S1901	△	QSP4D21-C06	PUSH SWITCH	Power SW
S6201		QSS4C22-C01	SLIDE SWITCH	Termination SW
S6202		QSS4C22-C01	SLIDE SWITCH	Termination SW
S6203		QSS4C22-C01	SLIDE SWITCH	SET UP
S6501		QSS4C22-C01	SLIDE SWITCH	AFC
TH9901	△	A76038-T	POSISTOR	
X1301		A76090	CRYSTAL	

EXPLODED VIEW PARTS LIST

	SYMBOL NO.	PART NO.	PART NAME	REMARKS
△	1	CJ27379-00A	FLYBACK TRANSF.	T501
△	2	M36JGK90X	PICTURE TUBE	V01
△	3	CELD011-003	DEG COIL	L01
△	4	CE20168-A0A	DEFLECTION YOKE	DY01
	5	CH30168-00D	BRAIDED ASSY	
	6	A48457	SPRING	
	7	A75034-B	P&C MAGNET	
	8	CE40764-00A	WEDGE ASSY	X4
	9	EAS-45P38B	SPEAKER	SP01
	10	CM46115-A01	POWER KNOB	
	11	CM46043-B01	VOL KNOB	X5
	12	CM46044-001	PUSH KNOB	X7
	13	CM11682-A01	TOP COVER	
	14	CM33989-001	HANDLE	X2
	15	SXST4010M	SCREW	X2
	16	SBSB4016M	TAP SCREW	X4
	17	CM11679-A01-M0	REAR COVER	
	18	CM44287-00C	ASSY SCREW	X2
	19	CM21335-A09 (R)	ROLL R LABEL	
△	20	QMCB005-001	3P INLET	
	21	CM11681-A01	BOTTOM BASE	
	22	SSSB3010Z	TAP SCREW	X4
	23	QZF2008-002	FOOT	X4
	24	SBSB4010Z	TAP SCREW	X4
	25	CM21944-B01	BOTTOM LID	
	26	CM44286-00A	ASSY SCREW	X4
	27	CM31015-A03-V0	CHASSIS RAIL	X2
△	28	QMP4718-200R	POWER CORD	
	100	CM11677-C0C-M0	FRONT PANEL ASSY	
	101	CM33992-001	SPEAKER NET	
	102	CM33995-B02	CONTROL SHEET	
	103	CM46116-A01	LED LENS	
	200	CM21945-00B	TERMINAL ASSY	
	201	CH40319-A0A	8P CONNECTOR	VTR
	202	CEMR002-001	7P CONNECTOR	Y/C358 OUT
	203	CEMR003-001	7P CONNECTOR	Y/C358 IN

EXPLODED VIEW





PRINTED CIRCUIT BOARD PARTS LIST MAIN PC BOARD ASS'Y (FX-1025A)

SYMBOL NO.	PART NO.	PART NAME	REMARKS
VARIABLE R			
R1101	QVAZ005-C004A	VR (CONT. BRIGHT)	CHROMA PHASE VOL. et
R1265	QVPA603-103A	VR (SUB CONTRAST)	10k Ω B
R1269	QVPA603-103A	VR (SUB BRIGHT)	10k Ω B
R1323	QVPC611-202HZ	VR (DL AMP)	2k Ω B
R1345	QVPA603-223A	VR (PAL SUB COLOR)	22k Ω B
R1348	QVPA603-103A	VR (SUB CHROMA)	10k Ω B
R1379	QVPC611-104HZ	VR (PULSE PHASE)	100k Ω B
R1409	QVPC611-501HZ	VR (V. LIN.)	500 Ω B
R1412	QVPC611-102HZ	VR (V. HEIGHT UND)	1k Ω B
R1413	QVPC611-501HZ	VR (V. HEIGHT NOR)	500 Ω B
R1505	QVPC611-502HZ	VR (H. HOLD)	5k Ω B
R1527	QVPC611-103HZ	VR (H. POSITION)	10k Ω B
RESISTOR			
R1293	QRD123J-681SX	C R	680 Ω 1/2W J
R1294	QRD123J-681SX	C R	680 Ω 1/2W J
R1295	QRD123J-681SX	C R	680 Ω 1/2W J
R1296	QRD123J-681SX	C R	680 Ω 1/2W J
R1414	QRX019J-2R7S	MF R	2.7 Ω 1W J
R1418	QRG019J-102S	OM R	1k Ω 1W J
R1419	QRD123J-182SX	C R	1.8k Ω 1/2W J
R1422	QRD123J-182SX	C R	1.8k Ω 1/2W J
R1423	QRX019J-3R3S	MF R	3.3 Ω 1W J
R1424	QRG019J-471S	OM R	470 Ω 1W J
R1427	QRX029J-2R2A	MF R	2.2 Ω 2W J
R1502	CJ39520-00P	R BLOCK	
R1503	QRD161J-223Y	C R	22k Ω 1/6W J
R1514	QRC039J-151A	OM R	150 Ω 3W J
R1524	QRG019J-680S	OM R	68 Ω 1W J
R1525	QRD123J-271SX	C R	270 Ω 1/2W J
R1531	QRG029J-221A	OM R	220 Ω 2W J
R1532	QRC039J-822A	OM R	8.2k Ω 3W J
R1537	QRX029J-R82A	MF R	0.82 Ω 2W J
R1541	QRD123J-220SX	C R	22 Ω 1/2W J
R1542	QRC029J-102A	OM R	1k Ω 2W J
R1543	QRC029J-102A	OM R	1k Ω 2W J
R1544	QRC029J-102A	OM R	1k Ω 2W J
CAPACITOR			
C1216	QCT25CH-390AZ	C CAP.	39pF 50V J
C1223	QEN61HM-106Z	BP E CAP.	10 μ F 50V M
C1229	QFV71HJ-104MZ	TF CAP.	0.1 μ F 50V J
C1236	QAT3110-300A	TRIM CAP.	30pF
C1316	QEN61HM-475Z	BP E CAP.	4.7 μ F 50V M
C1317	QFV71HJ-563MZ	TF CAP.	0.056 μ F 50V J
C1320	QAT3710-300MZ	TRIM CAP.	
C1331	QAT3710-300MZ	TRIM CAP.	
C1332	QAT3710-300MZ	TRIM CAP.	
C1333	QCT25CH-121AZ	C CAP.	120pF 50V J
C1334	QAT3710-300MZ	TRIM CAP.	
C1335	QCT25CH-101Z	C CAP.	100pF 50V J
C1339	QAT3710-300MZ	TRIM CAP.	
C1402	QEE61VK-105BZ	TAN. CAP.	1 μ F 35V K
C1410	QFV71HJ-104MZ	TF CAP.	0.1 μ F 50V J
C1412	QFV71HJ-104MZ	TF CAP.	0.1 μ F 50V J
C1425	QEN62AM-474Z	BP E CAP.	0.47 μ F 100V M
C1514	QFZ0083-563MZ	M CAP.	0.056 μ F 50V K
C1522	QFZ0081-4501S	MPP CAP.	4500pF 1600V \pm 3%
C1523	QFZ0081-3001S	PP CAP.	3000pF 1600V \pm 3%
C1524	QFZ0089-534S	MPP CAP.	0.53 μ F 200V J

SYMBOL NO.	PART NO.	PART NAME	REMARKS		
CAPACITOR					
C1525	QFV71HJ-474MZ	TF CAP.	0. 47 μ F	50V	J
C1532	QCF31HP-222AZ	CH C CAP.	2200pF	50V	P
C1616	QFV71HJ-104MZ	TF CAP.	0. 1 μ F	50V	J
C1617	QFV71HJ-104MZ	TF CAP.	0. 1 μ F	50V	J
C1620	QFV71HJ-224MZ	TF CAP.	0. 22 μ F	50V	J
C1621	QFV71HJ-224MZ	TF CAP.	0. 22 μ F	50V	J
C1805	QFV71HJ-224MZ	TF CAP.	0. 22 μ F	50V	J
C1806	QCT25CH-181Z	C CAP.	180pF	50V	J
C1807	QCT25CH-221Z	C CAP.	220pF	50V	J
C1812	QCT25CH-330Z	C CAP.	33pF	50V	J
C1813	QCT25CH-680Z	C CAP.	68pF	50V	J
TRANSFORMER					
T1302	CE40394-001	B P TRANSF			
T1502	CE40361-00B	SW DRIVE TRANSF			
T1503	CE40381-00A	SIDE PIN TRANSF			
COIL					
L1202	CELP006-120Z	PEAKING COIL			
L1203	A76186-22Z	PEAKING COIL	22 μ H		
L1302	A76186-8. 2Z	PEAKING COIL	8. 2 μ H		
L1303	A76186-8. 2Z	PEAKING COIL	8. 2 μ H		
L1304	A76186-4. 7Z	PEAKING COIL	4. 7 μ H		
L1305	A76186-39Z	PEAKING COIL	39 μ H		
L1306	A76186-3. 9	PEAKING COIL	3. 9 μ H		
L1501	CE41238-00A	WIDTH COIL			
L1502	A39934	LINIARITY COIL			
L1503	CE41238-00A	WIDTH COIL			
L1504	CJ30030-038	HEATER CHOKE			
DIODE					
D1205	RD5. 1ES (B3) -T2	ZENER DIODE			
D1206	1SS133-T2	SI. DIODE			
D1208	1SS133-T2	SI. DIODE			
D1209	1SS133-T2	SI. DIODE			
D1210	1SS146-T2	SI. DIODE			
D1211	1SS133-T2	SI. DIODE			
D1212	1SS133-T2	SI. DIODE			
D1213	1SS133-T2	SI. DIODE			
D1214	1SS133-T2	SI. DIODE			
D1301	1SS133-T2	SI. DIODE			
D1302	1SS133-T2	SI. DIODE			
D1303	1SS133-T2	SI. DIODE			
D1304	1SS133-T2	SI. DIODE			
D1305	1SS133-T2	SI. DIODE			
D1306	1SS133-T2	SI. DIODE			
D1307	1SS133-T2	SI. DIODE			
D1309	1SS133-T2	SI. DIODE			
D1401	1SR35-100A-HJ	SI. DIODE			
D1402	1SR35-100A-HJ	SI. DIODE			
D1403	1SS133-T2	SI. DIODE			
D1404	V19E-T3	SI. DIODE			
D1405	1SS133-T2	SI. DIODE			
D1408	1SS133-T2	SI. DIODE			
D1409	MA4051 (M)	ZENER DIODE			
D1410	MA4056 (M) -T2	ZENER DIODE			
D1411	1SS133-T2	SI. DIODE			
D1501	1SS133-T2	SI. DIODE			
D1502	HZ7B2L-C1	ZENER DIODE			
D1503	1SR35-100A-HJ	SI. DIODE			

SYMBOL NO.	PART NO.	PART NAME	REMARKS
DIODE			
D1504	1SR35-100A-HJ	SI. DIODE	
D1505	1SS133-T2	SI. DIODE	
D1506	MA4100 (M) -T2	ZENER DIODE	
D1508	1SS133-T2	SI. DIODE	
D1509	V19E-T3	SI. DIODE	
D1510	1SS133-T2	SI. DIODE	
D1511	V19E-T3	SI. DIODE	
D1512	V19E-T3	SI. DIODE	
D1513	V19E-T3	SI. DIODE	
D1514	U19E-FK	SI. DIODE	
D1515	1SS133-T2	SI. DIODE	
D1516	MA4220 (M) -T2	ZENER DIODE	
D1517	1SS133-T2	SI. DIODE	
D1518	V19E-T3	SI. DIODE	
D1519	1SS133-T2	SI. DIODE	
D1520	1SS133-T2	SI. DIODE	
D1801	1SS133-T2	SI. DIODE	
D1950	GL5PG23	L. E. D	Power
TRANSISTOR			
Q1207	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1208	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1209	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1210	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1211	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1212	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1213	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1214	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1215	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1216	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1217	2SA933S (QR) -T	SI. TRANSISTOR	
Q1218	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1219	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1221	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1222	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1223	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1301	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1304	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1305	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1306	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1307	2SA933S (QR) -T	SI. TRANSISTOR	
Q1308	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1309	2SA933S (QR) -T	SI. TRANSISTOR	
Q1401	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1502	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1503	2SC1627A (OY)	SI. TRANSISTOR	
Q1504	2SD1554-LB	SI. TRANSISTOR	H OUT.
Q1505	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1506	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1507	2SA933S (QR) -T	SI. TRANSISTOR	
Q1801	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1802	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1803	2SA933S (QR) -T	SI. TRANSISTOR	
Q1804	2SA933S (QR) -T	SI. TRANSISTOR	
Q1805	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1806	2SC1740S (QR) -T	SI. TRANSISTOR	
Q1807	2SA933S (QR) -T	SI. TRANSISTOR	
Q1808	2SC1740S (QR) -T	SI. TRANSISTOR	

SYMBOL NO.	PART NO.	PART NAME	REMARKS
IC			
IC1202	MC14066BCP	I. C.	or TC4066BP
IC1203	AN5615	I. C.	
IC1301	AN5625N	I. C.	
IC1302	TC4538BP	I. C. (M)	
IC1401	AN5521	I. C. (M)	
IC1501	HA11423	I. C.	
IC1502	MC7812CT	I. C.	or TA78012AP
IC1602	AN5265	I. C. (M)	
IC1801	MC14538BCP	I. C.	or TC4538BP
IC1802	MC14066BCP	I. C.	or TC4066BP
IC1803	MC14538BCP	I. C.	or TC4538BP
IC1804	MC14538BCP	I. C.	or TC4538BP
OTHERS			
	CM46042-001	LED HOLDER	
	SBX-S004A	SECAM MODULE PC	
CP1501	ICP-F50	IC PROTECTOR	
DL1201	CE41679-001	DELAY LINE	
DL1302	CE41489-001	1H DELAY LINE	
DL1303	CE41042-002	DELAY LINE	
FR1538	QRZ0054-4R7M	F R	4.7 Ω 1/4W J
FR1628	QRH017J-5R6M	F R	5.6 Ω 1W J
RY1501	CESK006-001	RELAY	
S1101	QST2731-C01	PUSH SWITCH	
S1401	QSL4A13-C02	LEVER SWITCH	V. Center SW
S1501	QSL4A13-C02	LEVER SWITCH	H. Center SW
S1901	QSP4D21-C06	PUSH SWITCH	Power SW
TH1201	A75575-332	THERMISTOR	3.3k Ω
X1301	A76090	CRYSTAL	

CRT SOCKET PC BOARD Ass'y (FX-3016A)

SYMBOL NO.	PART NO.	PART NAME	REMARKS
VARIABLE R			
R3702	QVPE805-201H	VR (R DRIVE)	200 Ω B
R3705	QVPE805-502H	VR (R CUT OFF)	5k Ω B
R3712	QVPE805-201H	VR (G DRIVE)	200 Ω B
R3715	QVPE805-502H	VR (G CUT OFF)	5k Ω B
R3725	QVPE805-502H	VR (B CUT OFF)	5k Ω B
RESISTOR			
R3708	QRG029J-822A	OM R	8.2k Ω 2W J
R3718	QRG029J-822A	OM R	8.2k Ω 2W J
R3728	QRG029J-822A	OM R	8.2k Ω 2W J
R3733	ERZ-C052K271	ZINC N R	
CAPACITOR			
C3709	QFH63BK-223M	MM CAP.	0.022 μ F 1250V K
DIODE			
D3704	1SS133-T2	SI. DIODE	
D3705	1SS133-T2	SI. DIODE	
D3706	RM2C-LFA1	SI. DIODE	
TRANSISTOR			
Q3701	2SC2068-LB	SI. TRANSISTOR	
Q3702	2SC4502-T	SI. TRANSISTOR	
Q3703	2SC2068-LB	SI. TRANSISTOR	
Q3704	2SC4502-T	SI. TRANSISTOR	
Q3705	2SC2068-LB	SI. TRANSISTOR	
Q3706	2SC4502-T	SI. TRANSISTOR	
OTHERS			
	A75522-C	CRT SOCKET	

INPUT PC BOARD Ass'y (FX-6015A)

SYMBOL NO.	PART NO.	PART NAME	REMARKS
RESISTOR			
R6201	QRV141F-75R0AY	MF R	75 Ω 1/4W F
R6202	QRV141F-75R0AY	MF R	75 Ω 1/4W F
R6213	QRV141F-75R0AY	MF R	75 Ω 1/4W F
R6301	QRV141F-75R0AY	MF R	75 Ω 1/4W F
CAPACITOR			
C6201	QEKC1HM-335GMZ	E CAP.	3.3 μ F 50V M
C6202	QEKC1HM-335GMZ	E CAP.	3.3 μ F 50V M
C6203	QEKC1CM-336MZ	E CAP.	33 μ F 16V M
C6204	QEKC1CM-336MZ	E CAP.	33 μ F 16V M
C6205	QEKC1CM-107MZ	E CAP.	100 μ F 16V M
C6602	QEKC1HM-105GMZ	E CAP.	1 μ F 50V M
C6603	QEKC1HM-105GMZ	E CAP.	1 μ F 50V M
C6604	QEKC1HM-105GMZ	E CAP.	1 μ F 50V M
C6605	QEKC1CM-107MZ	E CAP.	100 μ F 16V M
COIL			
L6601	A76186-1.0Z	PEAKING COIL	1.0 μ H
DIODE			
D6201	1SS133-T2	SI. DIODE	
D6202	1SS133-T2	SI. DIODE	
D6203	1SS133-T2	SI. DIODE	
D6204	1SS133-T2	SI. DIODE	
TRANSISTOR			
Q6201	2SC1740S (R) -T	SI TRANSISTOR	
Q6202	2SC1740S (R) -T	SI TRANSISTOR	
Q6203	2SC1740S (R) -T	SI TRANSISTOR	
Q6601	2SC1740S (R) -T	SI TRANSISTOR	
Q6602	2SC1740S (R) -T	SI TRANSISTOR	
Q6603	2SC1740S (R) -T	SI TRANSISTOR	
Q6604	2SC1740S (R) -T	SI TRANSISTOR	
Q6605	2SC1740S (R) -T	SI TRANSISTOR	
Q6606	2SC1740S (R) -T	SI TRANSISTOR	
IC			
IC6201	LA7016	I. C.	
IC6601	MC14066BCP	I. C.	or TC4066BP
OTHERS			
S6201	QSS4C22-C01	SLIDE SWITCH	Termination SW
S6202	QSS4C22-C01	SLIDE SWITCH	Termination SW
S6203	QSS4C22-C01	SLIDE SWITCH	SET UP
S6501	QSS4C22-C01	SLIDE SWITCH	AFC

POWER PC BOARD Ass'y (FX-9015A)

SYMBOL NO.	PART NO.	PART NAME	REMARKS
VARIABLE R R9913	QVPE805-503H	VR (B1 ADJ.)	50k Ω B
RESISTOR			
△ R9902	QRF204K-5R6	UNF R	5.6 Ω 20W K
R9909	QRG019J-151S	OM R	150 Ω 1W J
R9911	QRG039J-473A	OM R	47k Ω 3W J
R9912	QRG029J-470A	OM R	47 Ω 2W J
R9916	QRM055K-R22	MP R	0.22 Ω 5W K
R9918	QRX019J-3R9S	MF R	3.9 Ω 1W J
R9919	QRG029J-333A	OM R	33k Ω 2W J
R9921	QRD149J-561S	C R	560 Ω 1/4W J
R9922	QRD149J-2R2S	C R	2.2 Ω 1/4W J
CAPACITOR			
△ C9901	QFZ9022-104M	MF CAP.	0.1 μ FAC250V M
△ C9903	QFZ9022-224M	MF CAP.	0.22 μ FAC250V M
△ C9904	QFZ9022-104M	MF CAP.	0.1 μ FAC250V M
△ C9905	QCZ9034-472A	C CAP.	4700pFAC125V P
△ C9906	QCZ9034-472A	C CAP.	4700pFAC125V P
△ C9907	QCZ9034-472A	C CAP.	4700pFAC125V P
△ C9908	QCZ9034-472A	C CAP.	4700pFAC125V P
C9911	QEZ0111-337R	E CAP.	330 μ F 400V M
C9916	QCZ0122-391U	C CAP.	390pF 2kV K
C9917	QCZ0122-821U	C CAP.	820pF 2kV K
C9918	QCZ0122-821U	C CAP.	820pF 2kV K
C9919	QCF22HP-103M	CH C CAP.	0.01 μ F 500V P
C9921	QEH2AM-107MZ	E CAP.	100 μ F 100V M
C9923	QEH2AM-107MZ	E CAP.	100 μ F 100V M
C9925	QFV71HJ-474MZ	TF CAP.	0.47 μ F 50V J
△ C9927	QCZ9036-472M	C CAP.	4700pFAC125V M
△ C9928	QCZ9036-472M	C CAP.	4700pFAC125V M
△ C9929	QCZ9036-472M	C CAP.	4700pFAC125V M
△ C9931	QCZ9036-472M	C CAP.	4700pFAC125V M
C9934	QCZ0122-471A	C CAP.	470pF 2kV K
TRANSFORMER			
△ T9901	CE41100-00B	SW. TRANSF.	
△ T9902	CE41059-00B	DRIVE TRANSF.	
DIODE			
D9901	EU2A-LFF6	SI. DIODE	
D9902	RU1C-LFA1	SI. DIODE	
D9903	W06B	SI. DIODE	
D9904	EU2A-LFF6	SI. DIODE	
△ D9905	LB-156-LFB	DIODE BRIDGE	
D9906	EU2A-LFF6	SI. DIODE	
D9907	RU4B-LFK2	SI. DIODE	
D9908	R2M-LFA1	SI. DIODE	
D9909	1S1555-LB13	SI. DIODE	
D9910	W06B	SI. DIODE	
D9911	RU1C-LFA1	SI. DIODE	
TRANSISTOR			
Q9901	2SC2655 (Y) -T	SI. TRANSISTOR	
Q9902	2SA966 (OY) -T	SI. TRANSISTOR	
Q9903	2SD982	SI. TRANSISTOR	
IC			
△ IC9901	STR54041S	I. C. (H)	
OTHERS			
△ FR9908	QRZ0054-100M	F R	10 Ω 1/4W J
△ F9901	QMF51E2-3R15S	FUSE	3.15A
△ LF9901	CE40847-00C	LINE FILTER	

	SYMBOL NO.	PART NO.	PART NAME	REMARKS
△	OTHERS			
△	LF9902	CE40847-00C	LINE FILTER	
	TH9901	A76038-T	POSISTOR	

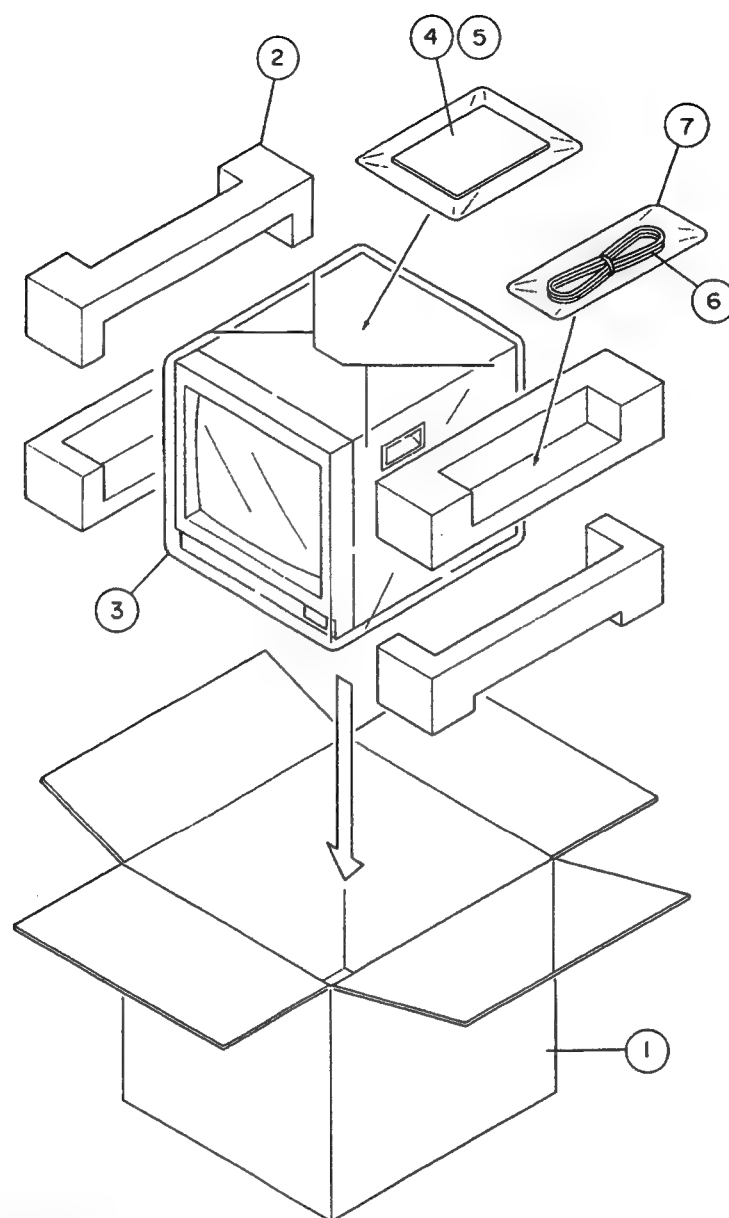
MODULE PC BOARD PARTS LIST

The following module pc boards are supplied as assemblies.

The component parts on the module PC boards are available only when the parts are listed in the "MODULE PRINTED CIRCUIT BOARD PARTS LIST".

SECAM MODULE PC BOARD Ass'y (SBX-S004A) within MAIN PC BOARD Ass'y.

PACKING



PACKING PARTS LIST



SYMBOL NO.	PART NO.	PART NAME	REMARKS
1	CP10756-A12	PACKING CASE	4Pcs in 1set
2	CP10901-B0A	CUSHION ASSY	
3	AP3804-22	SET COVER	
4	TM-1500PS-IB-A	INST. BOOK	
5	QZL1008-004	DBP INFOR SHEET	
6	QMP4718-200R	POWER CORD	
7	QPGA030-02505	POLY. COVER	

JVC TM-1500PS SCHEMATIC DIAGRAM

■ NOTICE

- The voltage reading and waveform are measured at each point with a multi-meter and an oscilloscope while input a video signal (color bar) through the video input terminal (INPUT A) on the monitor.
The measurements were made with each VR under the condition just after the shipment. The figures of the signal circuits may be more or less different after adjustments, so use the figures simply for reference.
- Multimeter used.
DC 20kΩ/V
Given figures are all DC voltages.
Sweep speed of oscilloscope
H → 20μS/div. V → 5mS/div.
Others — sweep speed specified
- Since the schematic diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.

■ SAFETY

FR () denotes a fusible resistor which operates as a fuse. When replacing fusible resistors and parts indicated with black shading () in the circuit diagrams, be sure to ensure safety by using designated parts. As to other parts too, use designated parts to maintain safety and performance.

■ INDICATION OF PARTS SYMBOL

Inside board (Example) FX-1025A : R1209 → R209
Outside board (Example) R0001 → R01

■ SCHEMATIC DIAGRAM INDICATION

Resistor

- Resistance value
Without unit : [Ω] K : [kΩ] M : [MΩ]
- Rated allowable power
Without indication : 1/6W
- * Others Indicated
- Type
Without indication : Carbon resistor
OMR : Oxide metal film resistor
UNFR : Unflammable resistor
MFR : Metal film resistor
MPR : Metal plate resistor
FR : Fusible resistor
- * Composition resistor 1/2 [W] is indicated as 1/2S or Comp.

Capacitor

- Capacitance
Above 1 : [pF] Below 1 : [μF]
- Withstand voltage
Without indication : DC 50 [V]
Others : DC withstand voltage [V]
AC indicated : AC withstand voltage [V]
- Indications for electrolytic capacitors are as follows.
(Example)
47/50 → capacitance [μF] / withstand voltage [V]
- Type
Without indication : Ceramic capacitor
MY : Mylar capacitor
MM : Metalized mylar capacitor
PP : Polypropylene capacitor
MPP : Metalized polypropylene capacitor
MF : Metalized film capacitor
TF : Thin film capacitor
BP : Bipolar electrolytic capacitor
TAN. : Tantalum capacitor

Coil

Without unit : [μH]

Power Supply





 : B1 (110V)  : B2 (12V)

* Each voltage reading specified



Connection method

-  : Connector
-  : Receptacle
- ○ : Wrapping or soldering

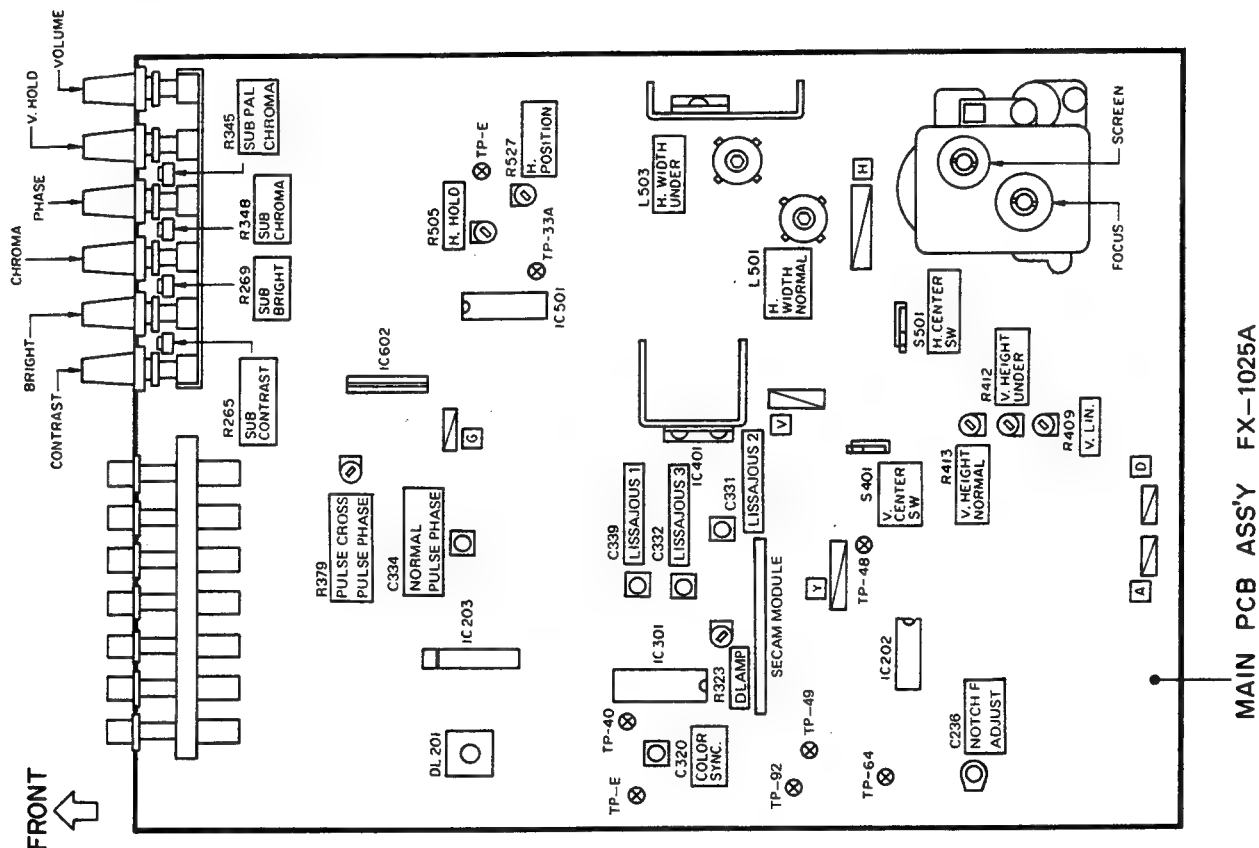
Test point & GND. symbol.

-  : Test point by miniature GT pin
-  : Only test point display
-  : Live (Primary) side ground
-  : Neutral (Secondary) side ground

NOTE FOR SERVICE

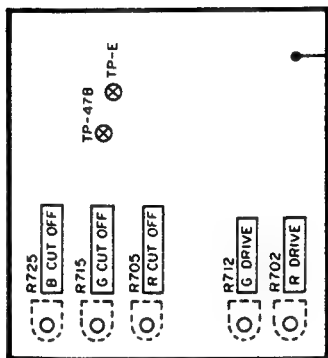
This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE (primary: ) side GND and the NEUTRAL (secondary: ) side GND.
Don't short between the LIVE side GND and NEUTRAL side GND or never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and NEUTRAL side GND at the same time.
If above note will not be kept, a fuse or any parts will be broken.

ALIGNMENT LOCATION

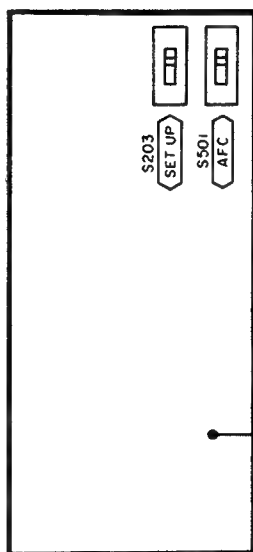


TOP

(BACK SIDE)

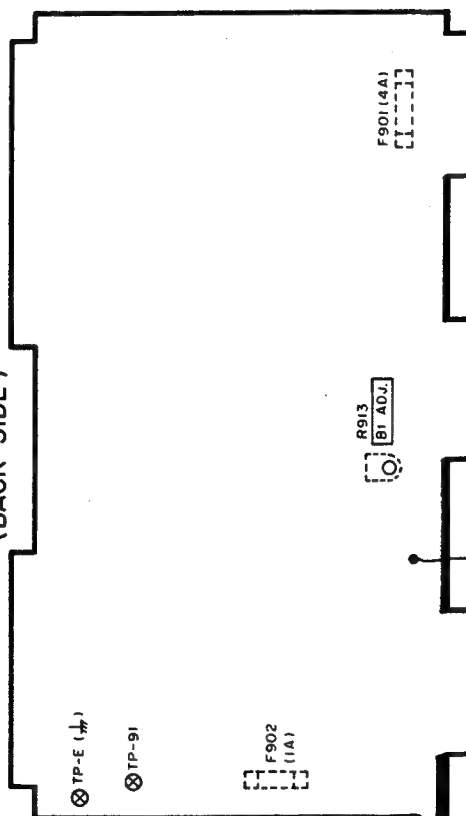


CRT SOCKET PCB ASS'Y FX-3016A



INPUT PCB ASS'Y FX-6015A

(BACK SIDE)

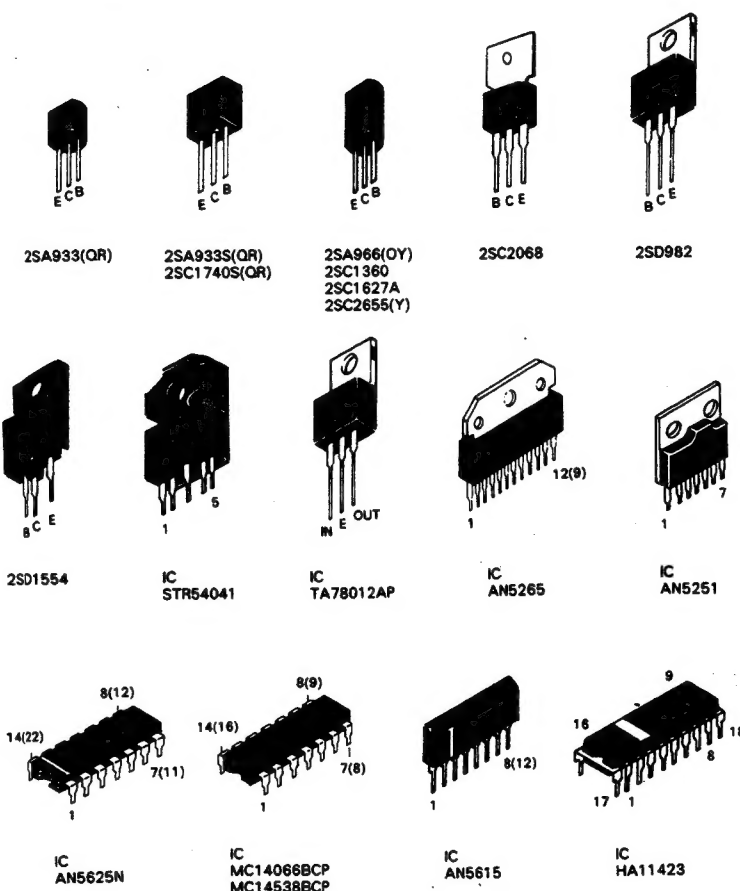


POWER PCB ASS'Y FX-9015A

MAIN PCB ASS'Y FX-1025A

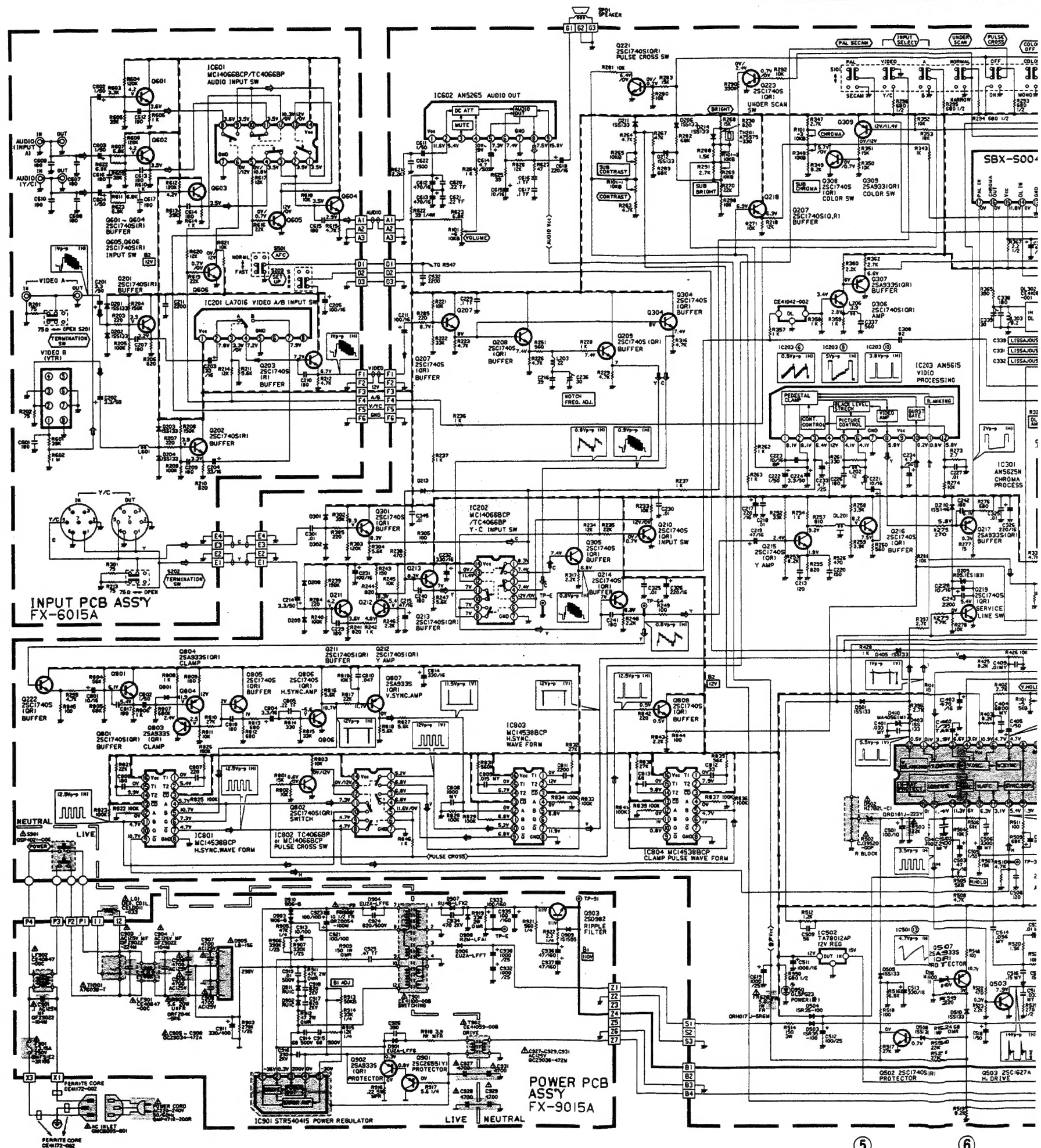


Basing of Transistor & ICs



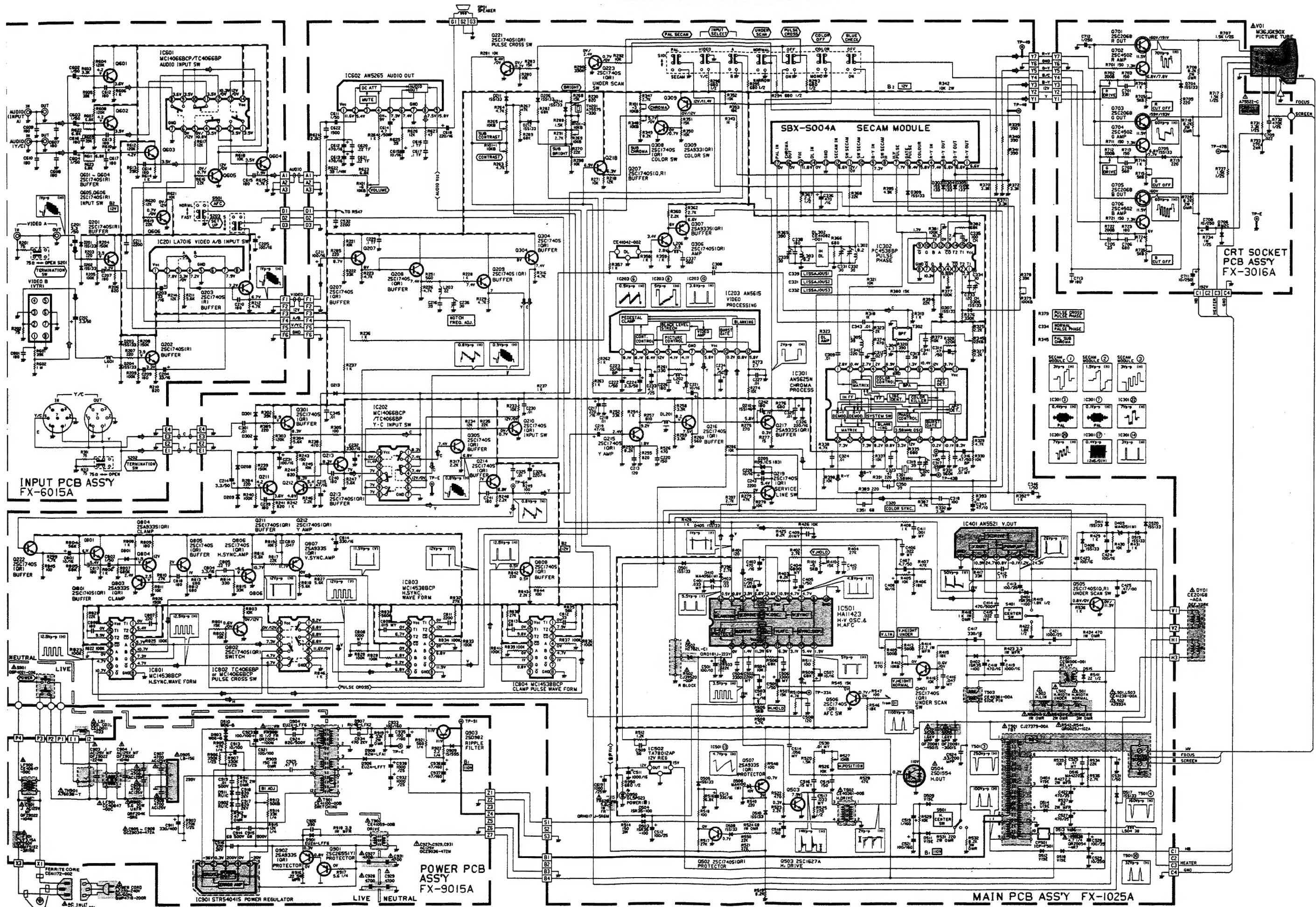
NOTE FOR SERVICE

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE (primary: \perp) side GND and the NEUTRAL (secondary: \nmid) side GND. Don't short between the LIVE side GND and NEUTRAL side GND or never measure with a measuring apparatus (oscilloscope etc.) the LIVE side GND and NEUTRAL side GND at the same time. If above note will not be kept, a fuse or any parts will be broken.



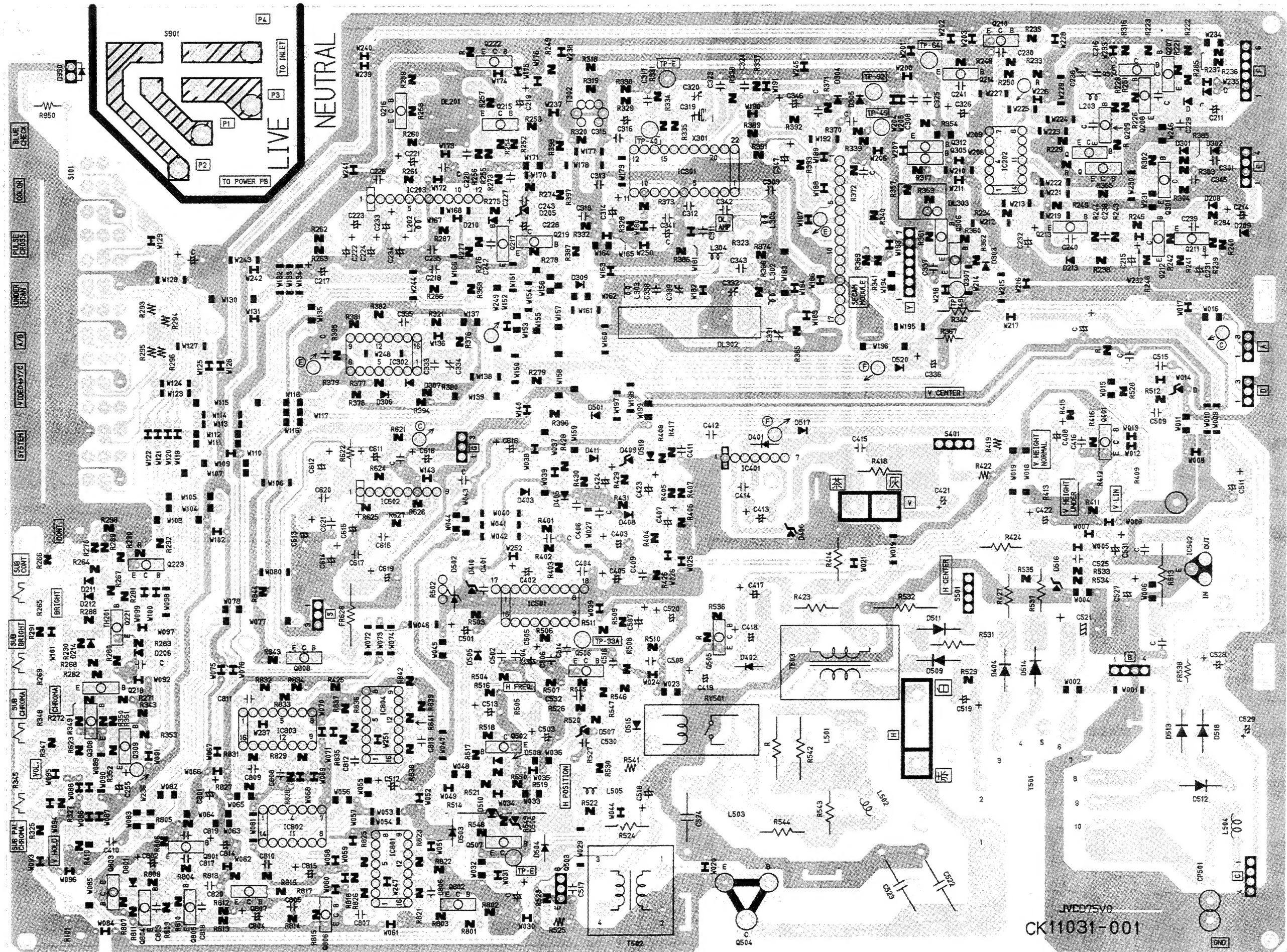
(A)

(A)



(5)

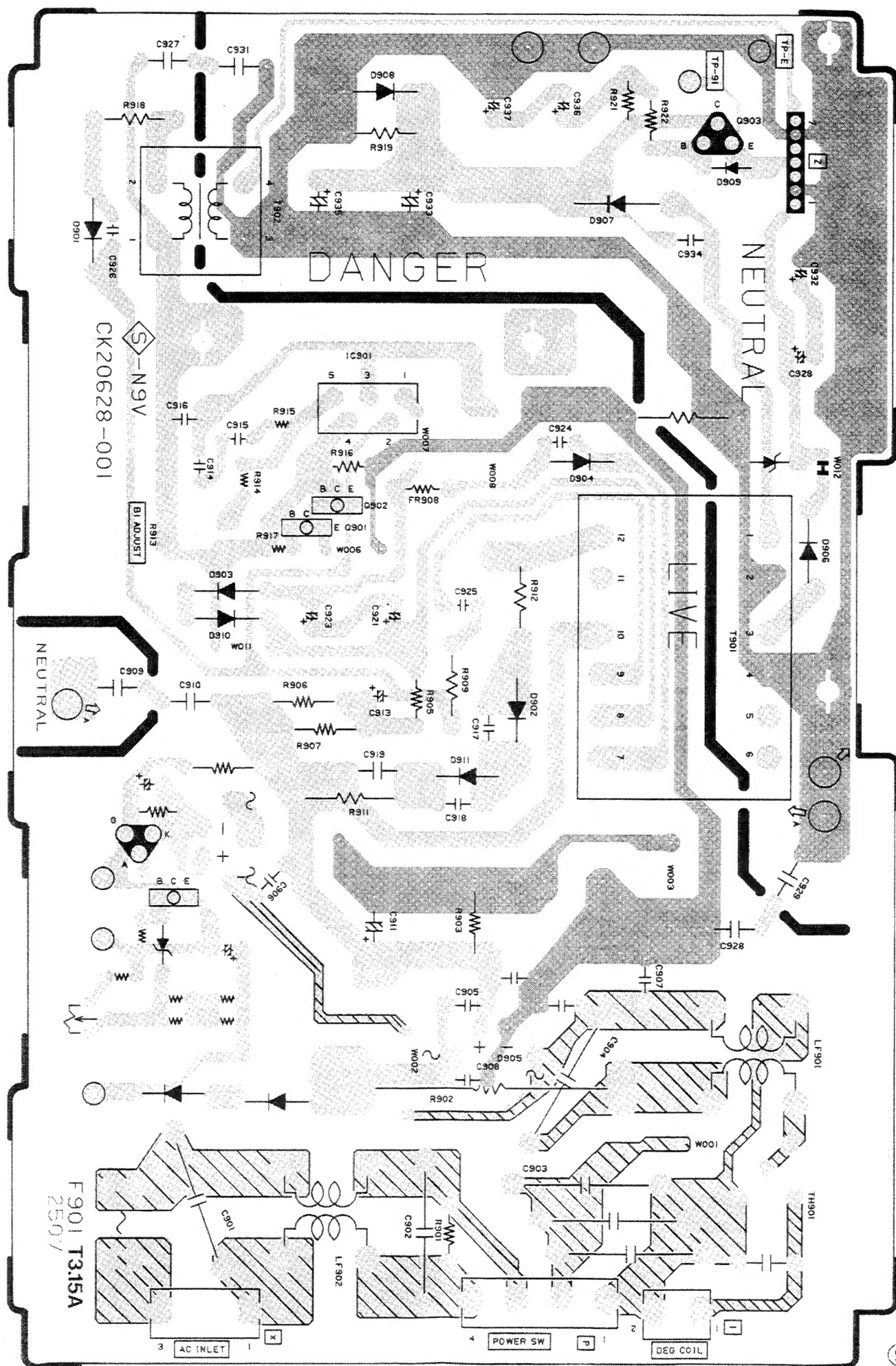
(6)



POWER PCB BACK PATTERN

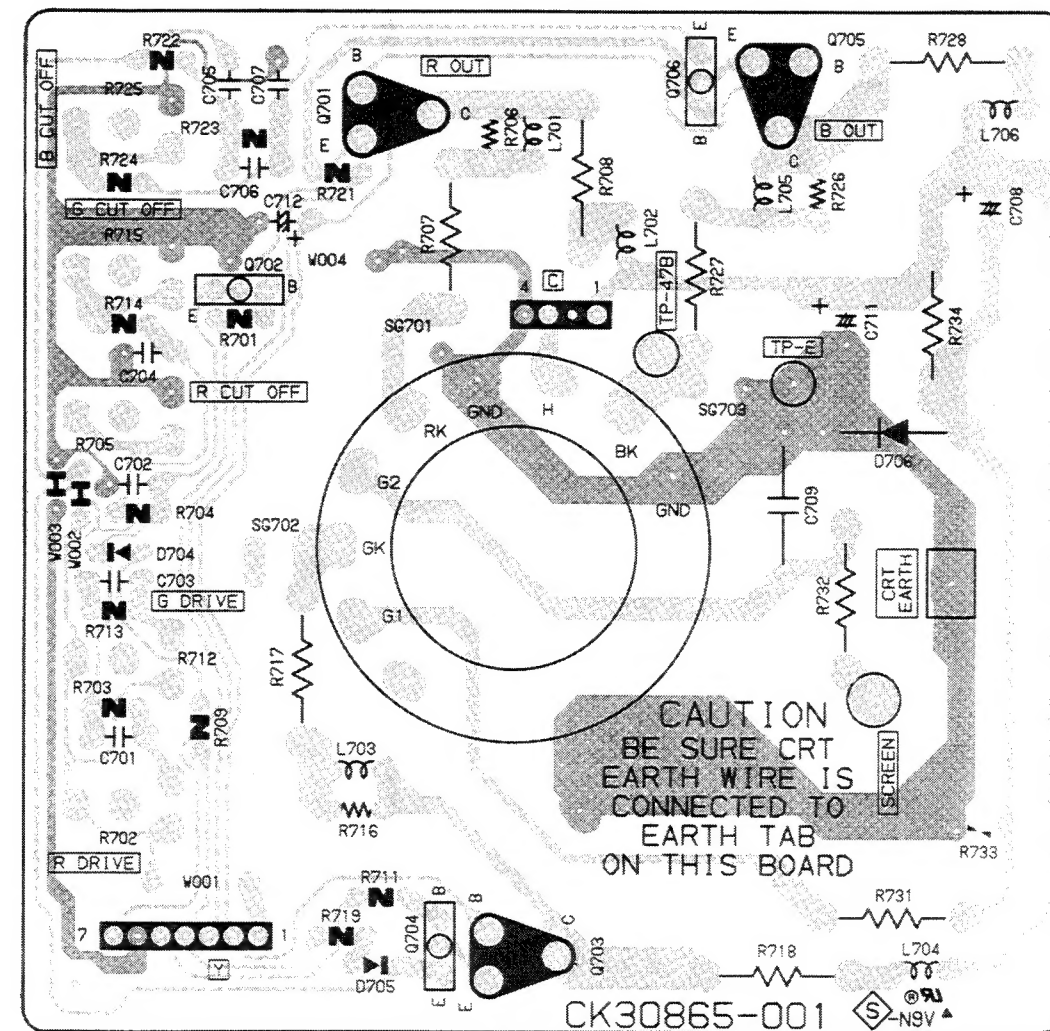
TOP

TM-1500PS TM-1500PS



CRT SOCKET PCB BACK PATTERN

TOP



INPUT PCB BACK PATTERN

TOP

